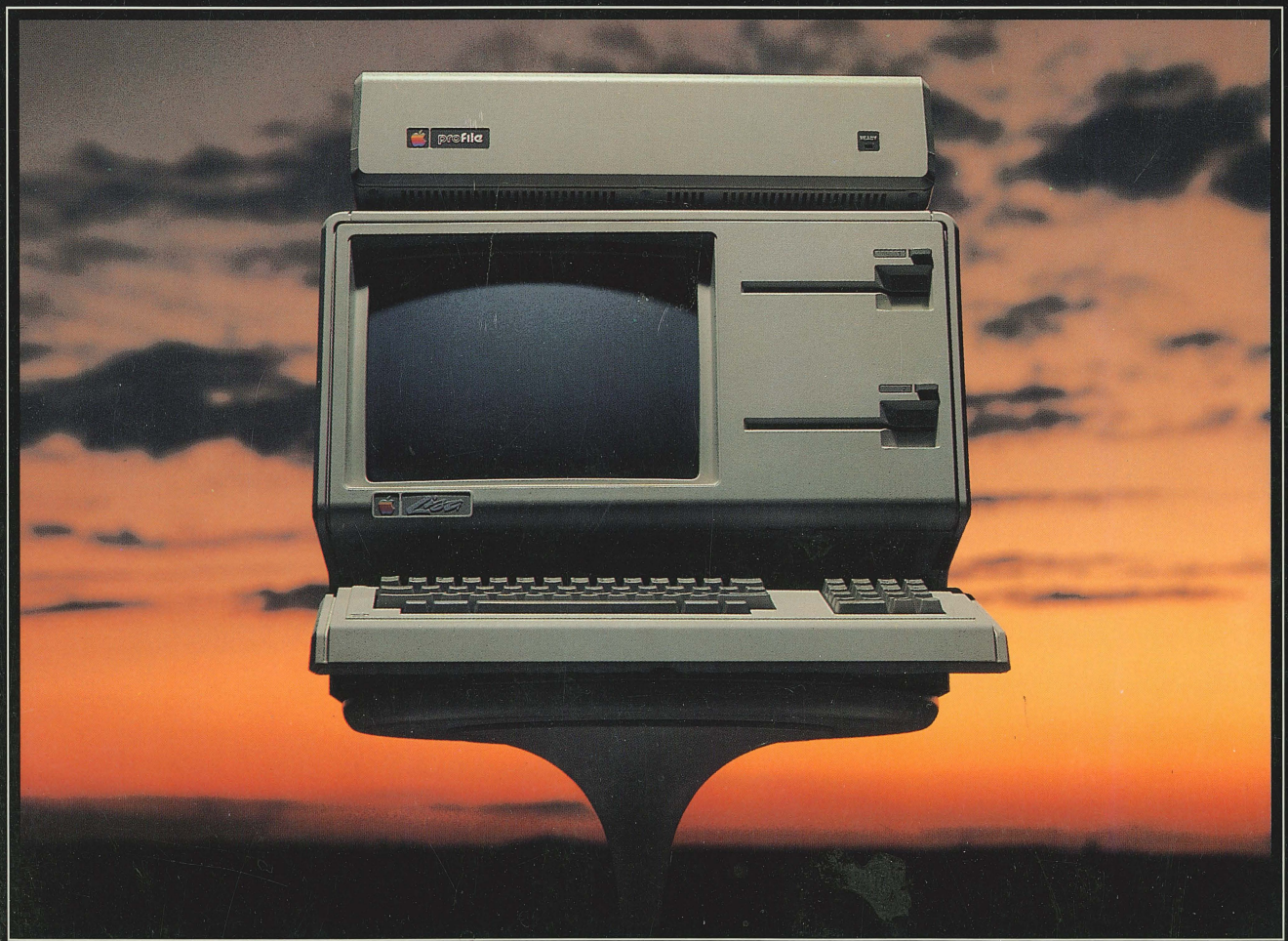
micro COMPUTER books

INCLUDING THE LISA 2™

Introduction to the LISA™

Arthur Naiman



CM/HW 35-
4692
MXX

Introduction to the Lisa

0 77

Also by Arthur Naiman

Every Goy's Guide to Common Jewish Expressions
Introduction to WordStar
Word Processing Buyer's Guide
Computer Dictionary for Beginners
The First Book to Read about the IBM Personal Computer

Introduction to the Lisa

Arthur Naiman

Addison-Wesley Publishing Company
Reading, Massachusetts Menlo Park, California
London Amsterdam Don Mills, Ontario Sydney

Lisa is a trademark of Apple Computer, Inc. Macintosh is a trademark licensed to Apple Computer, Inc.

"Master and Boatswain," copyright 1944 by W. H. Auden. Reprinted from *W. H. Auden: Collected Poems,* edited by Edward Mendelson, by permission of Random House, Inc.

"The Eye," copyright 1941, 1944, and renewed 1969, 1972 by Donnan Jeffers and Garth Jeffers. Reprinted from *Selected Poems,* by Robinson Jeffers, by permission of Random House, Inc.

Copyright © 1984 by Arthur Naiman

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the Publisher. Printed in the United States of America. Published simultaneously in Canada.

Library of Congress Cataloging in Publication Data

Naiman, Arthur.
Introduction to the lisa.

Includes index.
1. Lisa computer. I. Title.
QA76.8.L55N35 1984 001.64 84–327
ISBN 0–201–15895–7

Jacket design by Marshall Henrichs. Text design by Lori Snell.
Set in 11-point Aster by Kingsport Press.

ISBN 0–201–15895–7

ABCDEFGHIJ–HA–8987654

for Kal
and
for Ellie

Contents

	Acknowledgments	ix
	Introduction	1
1	The Lisa's Hardware and How It's Different from Other Computers'	5
2	The Lisa's Software and How It's Different from Other Computers'	23
3	Using a Lisa for the First Time	85
4	Word Processing with LisaWrite	93
5	Managing a Data Base with LisaList	117
6	Predicting the Future with LisaCalc	123
7	Making Business Charts with LisaGraph	135
8	Scheduling and Job Tracking with LisaProject	153
9	Drawing Diagrams and Pictures with LisaDraw	169
10	Communicating with LisaTerminal	193
11	Doing More with a Lisa	197
	Index	201

Acknowledgments

When the editor of a book is mentioned in the acknowledgments, it's often interesting to look for what's *not* said. Since there are almost always difficulties between author and editor, and since there's no point in writing an acknowledgment if it's going to be negative, authors tend to "accentuate the positive." But you won't have to read between the lines here—working with Ted Buswick has been a complete delight in every way.

Ron Lichty continues his unbroken string of acknowledgments in my books (six for six). He read a draft of the first three chapters and made many helpful suggestions—as did that computer wizard and inexhaustible source of *bon mots*, Fred Davis. For their reading of the same draft, Mike Bradley and Meg Holmberg tried to pretend they knew less about computers than they do; their comments helped me see where my writing was obscure, confusing and—worst of all—not funny.

I also want to express my appreciation to five small islands of competence and sanity in a sea of bureaucratic ineptitude so vast and deep it would flabbergast even an employee of the New York City Board of Education (connoisseurs of world-class passive aggression will appreciate the enormity of this statement). How the Apple Computer Company managed, in a few short years, to grow into something beyond Kafka's wildest night-

mares will no doubt fascinate scholars for centuries to come; I'm just grateful that a handful of its employees—Linda Goffen, Ron Perrotta, Burt Cummings, Bill Libbey and Karen Steele—somehow managed to buck the tide.

A few others at Apple also tried to help, but found themselves as powerless as that ancient king who sat on his throne and ordered the advancing sea to halt, futilely continuing even as the water washed about his ankles, then his knees . . .

Pete Lundstrom (or Lungstrom—the records are unclear) suggested I write this book and encouraged me in the early stages. Mike Nadelman of Apex Information Systems tried to do what Apple couldn't—give me an opportunity to look at LisaTerminal—but the fates conspired against us.

Janice Byer did her usual fine job of copy-editing. Marshall Henrichs made the cover of the book look beautiful, and Lori Snell did the same for the inside.

I also want to thank Charlie Rubin, Ira Rosenberg, Tom Crosley, Bill Finzer, Steve Rosenthal, Tony Pietsch, Kathleen MacEnroe, Gloria Zarifa, Yvette Manson, Nancy Shine, Matthew Lasar, Dave Brast, Victor Fischer, Cheryl Nichols, Albert and Nettie Naiman, Rita Gibian, Jane Margold, Eric Angress and Eva Walen for aid and comfort of various kinds.

Introduction to the Lisa

Introduction

If you're looking for a personal computer and wonder if Apple's Lisa might be right for you, this book will give you a very good feeling for its strengths and weaknesses. If you already own a Lisa (or have definitely decided to buy one), this book will get you started using it much more quickly and easily than Apple's own user manual and training program—because, unlike them, it presents information in the order you need to know it, and explains things clearly and simply.

Chapter 1 describes the Lisa's hardware and how it's different from more traditional computer equipment. Since this book was written before the Lisa 2 was introduced, some of the comments in it refer specifically to the original Lisa system, the "Lisa 1." However, by means of an elaborate series of deceptions and bribes—not to mention a daring commando raid that was the talk of Rangoon for months afterwards—I was able to learn the basic facts about the Lisa 2, and they are included as well (you'd think Apple was planning a military coup, rather than a product introduction, from the maniacal ferocity with which they guarded what was essentially mundane information).

Chapter 2 describes the Lisa's unconventional approach to software in great detail. The screens produced by the new, faster Lisa 2 software may differ slightly from those shown in this book. But most of the differ-

ence is simply speed—the basic approach remains unchanged, and Chapter 2 gives you an excellent sense of it.

Chapter 3 provides some tips on how to avoid anguish when getting started on a Lisa. Chapters 4 through 10 describe the seven standard software "tools" that come with the Lisa:

- LisaWrite, a word processing program
- LisaList, a data base manager
- LisaCalc, an electronic spreadsheet
- LisaGraph, a program for producing several different kinds of business charts
- LisaProject, a job tracking and scheduling program
- LisaDraw, a very sophisticated graphics program
- LisaTerminal, a telecommunications program

The order in which I present these programs is not random; what you learn about each program helps you understand the next—from LisaWrite, which introduces skills basic to all the other tools, to LisaDraw, which incorporates and enhances techniques from most of the others. (LisaTerminal is simply stuck on the end because Apple itself stuck it on at the end—introducing it a year after the other standard tools.) You don't have to read the chapters in order, of course, but if you do skip around, be prepared to refer back to earlier chapters occasionally.

The Apple manuals for these seven programs are quite good and I don't try to duplicate what they do. It takes a while to get the hang of the Lisa's approach to software, but once you're comfortable with it, specific applications are a snap. The organization of this book reflects that: Chapter 2 (on the basics) is quite long, Chapters 4 through 10 (on the applications) are much shorter.

Rather than bore you (and myself) with the fake business letters and such that are typically used as examples in training manuals and introductory books, I've given you poems, jokes and deranged rants. These are

a lot more fun, and you won't have any trouble making the transition to actual business or personal uses.

Chapter 11 talks about how you can go beyond the standard Lisa—both by adding hardware and software. It also discusses the differences between the original Lisa system, announced in January, 1983, and the Lisa 2, announced in January, 1984 (guess what month of the year Apple holds its annual shareholders' meeting?).

Finally, there's a very complete index, so you can use this book as a reference, not merely as a thrilling one-time read.

Introduction to the Lisa is written in simple, everyday English. I assume you have a basic understanding of how computers work and of elementary computer technology, but I avoid jargon as much as possible. When I do find it necessary to use a technical term, I typically boldface it and define it. If you need more help than that, there are several good beginning computer dictionaries on the market (since I wrote the best of them, modesty prevents me from recommending one).

1 The Lisa's Hardware and How It's Different from Other Computers'

Whether or not you decide you like the Lisa, and whether or not you think it's worth what it costs, there's no question about one thing—it's not just another ho-hum, me-too machine.

The Lisa's innovations can be found both in hardware and software, but since hardware is what you see first, that's what I'll cover first (and naturally I'll cover the Lisa's noninnovative features as well as its innovative ones).

A standard Lisa system consists of a console, a keyboard, a mouse (which I'll describe in a little while) and one or more storage devices.

The **console** is the computer itself, the screen, and the cabinet that contains them. On the original Lisa, the "Lisa 1," it also enclosed two 5¼-inch minifloppy disk drives that each held 860K; on the Lisa 2, it encloses a 3½-inch microfloppy disk drive that holds 400K (with 800K on the way) and an optional hard disk drive that holds either 5 MB or 10 MB (the Lisa 2/5 and 2/10, respectively).

A major advantage of the 3½-inch drive is that it's the same one used in the Macintosh, a machine for which a lot of software will be written. For the other advantages, see Chapter 11.

Since no hard disk was built into the Lisa 1, it was always hooked up to one or more of Apple's external

Figure 1–1

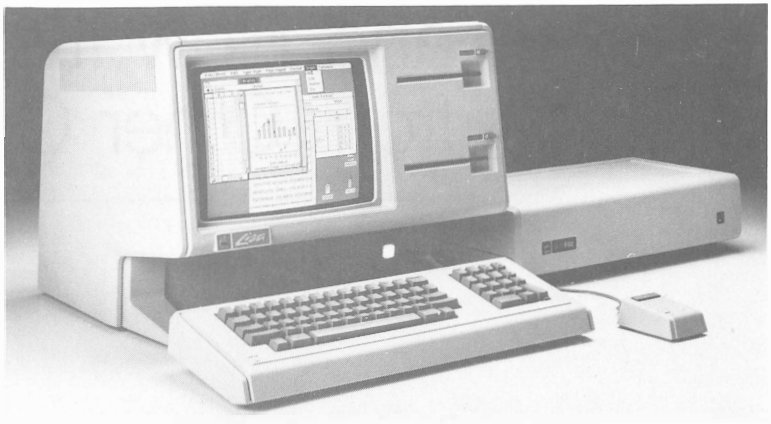
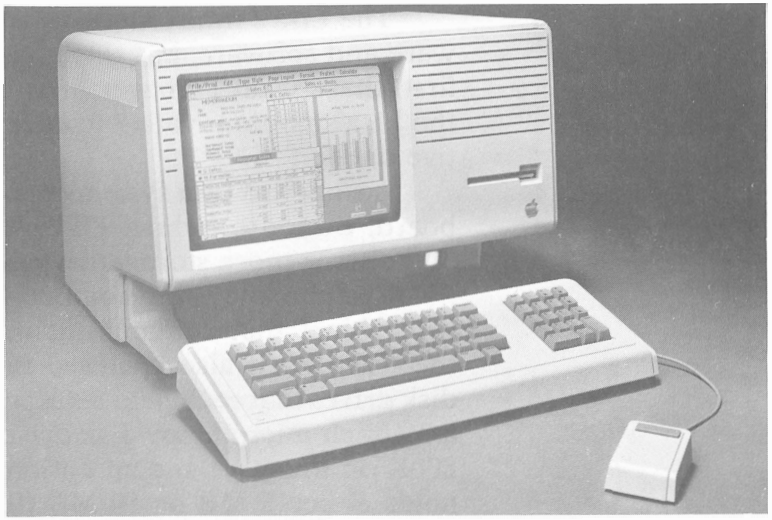


Figure 1–2



ones, called **ProFiles**. A ProFile holds somewhat less than five megabytes.

The standard system for the Lisa 1 is shown in Figure 1–1, with the ProFile and the mouse to the right; Figure 1–2 shows the Lisa 2 (as you can see, there's only one slot for floppy disks and the front panel is also somewhat different).

One additional piece of hardware is needed to make a Lisa system really complete—a printer. Both dot-matrix and formed-character (daisy wheel or thimble) printers are available, but the dot-matrix printer is standard. There are a lot of things you can do with it that you can't do with a formed-character printer, although it's not as good at producing professional-looking business letters and manuscripts.

The system I used when I wrote this book was a Lisa 1 with Apple's old dot-matrix printer, so that's what I'll be describing—with appropriate asides about the Lisa 2 whenever necessary. Here's one now: when the Mac and Lisa 2 were introduced, Apple also brought out a new, improved dot-matrix printer called the Imagewriter.

These components are discussed at various points below, but the chapter isn't organized around them; instead, it focuses on various qualities of the Lisa, its virtues and its failings.

Ease of use

This is the quality that Apple brags about the most when promoting the Lisa. Ease of use is mostly a function of software, but the Lisa's hardware also incorporates many advanced ergonomic features. (**Ergonomics**—also called **human engineering**—is the science of designing a product as if human beings were going to use it.)

Let's start with the screen. I'm convinced that most of the eyestrain that people who work at VDT's complain about is due to things like flicker, glare, flashing cursors and so on. **Flicker** is caused by the fact that the image on the screen is not constant but is continually renewed by the cathode-ray gun at the back of the tube. (This is called **rewriting** or **updating** the screen, and the number of times per second it's done is called the **refresh rate**.)

The picture on the screen *appears* to be more or less constant because both our eyes and the **phosphor** (which coats the inside of the screen and glows when

the cathode-ray gun hits it with an electron) hold on to images for a little while. In the case of our eyes, this is called the **persistence of vision**; it's the reason why movies seem continuous rather than jerky (since, after all, they're made up of a series of distinct, separate images).

The Lisa's screen image is very steady and easy to look at, for a number of reasons:

- The screen is updated 60 times a second (instead of the more common 30 times a second).
- It has dark characters on a light background, rather than the usual light characters on a dark background.
- You can adjust the contrast between the characters and the background to your own taste (but you should know that a grey background is much easier on your eyes than a white one). Sixteen levels of contrast are under software control, and going from one to the other is simple.
- The screen is relatively nonreflective, and it comes with an optional glare guard for difficult situations.
- The **pointer**—the symbol that tells you where you are on the screen (called the **cursor** on most other systems)—doesn't flash. There is a blinking vertical bar that shows up when you're inserting text, but it's quite thin and blinks fairly slowly.
- **Ghost images** are a problem on some screens. They're caused when the same display remains a long time on a brightly lit screen and gets burned into—or exhausts certain parts of—the phosphor. To prevent this, the Lisa's screen automatically dims itself when the image on it remains unchanged for a while. (It comes back up to normal brightness the moment you touch the keyboard or the mouse.) You can even adjust how long the Lisa waits before dimming the screen.

The Lisa's keyboard is also well designed for comfort and ease of use. It's laid out like a standard typewriter keyboard (with the addition of a few keys), which makes it easy to learn. But some of the keys could be better placed. For example, the backspace key (used con-

stantly by incompetent typists like myself) is stuck off in a corner where it's hard to reach, farther away than other keys that are much less important (like those for square and curly brackets).

The keyboard incorporates a **numeric keypad** (like the one on a calculator)—a useful feature when you're working with a lot of figures. The numeric keypad has a raised dot on the 5 key, to help you position your fingers quickly.

The keyboard is attached to the console with a four-foot coiled cord. This allows you to place the keyboard in the most comfortable position for working (which is usually lower and closer to you than the console). The keytops are concave to fit your finger tips, and they have a textured, nonslip surface.

Underneath the keyboard are four pull-out reference cards. The first tells you which keys can be used to generate special symbols; others provide handy summaries of the Lisa's basic operations. These cards are a helpful touch.

Although the keyboard and the screen are impressive, the Lisa's claims for easy-to-use hardware rest largely on the **mouse**—a little box with a ball bearing on the bottom and a button on the top, connected to the computer with a wire. It's called a mouse because it's small (though not as small as an actual mouse), grey (though not as grey as an actual mouse), and has a wire sticking out of it that looks a little like a tail (if you have a vivid imagination).

When you roll the mouse on a flat surface, the pointer moves in the same direction on the screen (although not the same distance—the pointer moves about 2½ inches for every inch the mouse moves).

The benefit claimed for the mouse is that it allows people to take advantage of their natural hand-eye coordination, and also that moving the pointer with a mouse is more intuitive—more like what we do in everyday life—than hitting various keys to direct it.

When you really get used to the mouse, you forget that it's there; it feels like you're simply moving the pointer with your hand. As a result, the mouse lets you

move the pointer faster and more accurately than you can using the keyboard.

But the mouse has one big disadvantage: it forces you to take your hand off the keyboard. This is not so much of a problem if you plan to use the Lisa primarily for graphic applications, but if you want to do much writing on it, having to constantly move your hand from the keyboard to the mouse will drive you nuts.

The Lisa was designed primarily for use in corporate offices, and part of the reason the mouse was developed has to do with a basic fact about that market: most corporate executives would sooner touch a leper than a keyboard. They feel it diminishes their stature to be doing what someone walking by their office might perceive as clerical work. *Secretaries* use keyboards; *executives* call secretaries into their offices and dictate to them. To be seen with your own little pink hands at the keyboard is demeaning; beggars will leer at you in the street and snigger to their friends, "*He* sits at a *keyboard*."

Ah, but the mouse is different! Most secretaries don't even know what it is. So if there were a computer that used a mouse instead of a keyboard for most of its major functions, executives could buy it without embarrassment and remorse (and presumably, therefore, by the carload).

As you can tell from these evenhanded remarks, I totally sympathize with executives in this crazed fear of theirs. But there are better reasons for using a mouse than keyboardphobia—it is a great way to move the pointer around. So what's the solution?

I'm glad you asked. The solution is a mouse-like device *on the keyboard*—a touchpad, joystick, trackball or the like—that takes advantage of all the hand-eye intuitive stuff, but keeps your hands on the keyboard where they belong.

Actually, the *ultimate* solution is two devices that fit over your hands like gloves. You wiggle your fingers in one to produce characters and in the other to move the pointer around. (If you stop to think about it, this

can be easily done. Each finger can move up and down, and the thumb can move back and forth in at least three different positions. That makes a total of fourteen distinct movements on each hand, and therefore 14^2 (196) possible combinations—more than enough, on the one hand, to produce every conceivable character, and on the other, to move the pointer anywhere in the known universe.)

You lie in a hammock with these glove things on and look at a screen which fills the wall. (Naturally there are no wires; this *is* 1990, after all.) Your hands twitch idly and the image on the screen dances at your command. What a wonderful—almost magical—device! And to think that Naiman dreamt it up so many years ago.

But even this isn't the ultimate solution. They're working on a device that shines infrared beams into your eyes, so you can position the pointer merely by *looking* where you want it to go! (I don't use exclamation marks often, but that deserves one.) Of course you do have to push a button to tell the pointer to obey this device; if the pointer were always following your eyes, it could end up in some embarrassing places.

Ah, well—back to the dreary, primitive 1980s. Another advantage of the mouse-built-into-the-keyboard approach is that you don't have to leave a clear space on your desk for the mouse to move around in. (If you're like me, the concepts "desk" and "clear space" are mutually exclusive. Apple recommends a square space six inches on a side for the mouse; on my desk, they might as well be asking for six miles.)

Aside from the space for the mouse, the Lisa doesn't require much room. The console is about fourteen inches high, nineteen inches wide and fifteen inches from front to back (sixteen inches with the keyboard stowed under the front). And at forty-eight pounds for the console and four pounds for the keyboard, it's not terribly hard to move around.

The ProFile hard disk drive is just four inches high, seventeen inches wide and nine inches from front to

back. It weighs eleven pounds and sits comfortably on top of the console (which is the usual place for it, Figure 1–1 notwithstanding). The Lisa 2/5 and 2/10 consoles will weigh more than the Lisa 1 console, but of course you won't need a ProFile with them.

Another thing that makes the Lisa easy to use is how quiet it is. By taking advantage of convective cooling, the Lisa's designers were able to eliminate the need for a fan. Unfortunately, the ProFile makes as much noise as a fan does, even though it's quiet for a hard disk drive.

The directions for setting up a Lisa are explicit, clear and well illustrated, and most of the installation procedures are quite simple. For example, all you have to do to connect either a ProFile or a dot-matrix printer is to run a cable from it to the Lisa and a power cord from it to the wall.

That pretty much covers ease of use from a hardware standpoint; as I said, much of the Lisa's ease of use has to do with software and is discussed in the next chapter.

Safety

For my money, the most important question you can ask about a computer or a program is: "Is it safe?" By "safe" I mean that it doesn't crash if you sneeze and isn't full of snares and pitfalls that destroy hours of work for no good reason (as if there could be a good reason for destroying your work). This is an area in which the Lisa really shines—it's by far the safest computer system I've ever worked with.

Software deserves most of the credit for this; there are a huge number of **error messages** (text on the screen that tells you something is wrong) and each is a masterpiece of clarity and relevance. But there are several significant hardware safety features as well.

For example, the Lisa's idiot-proofing is quite extensive:

- When you remove the front or rear panel, the power automatically turns off and any residual voltage is

drained away. (Only service personnel can get into the high-voltage CRT and video board circuitry.)

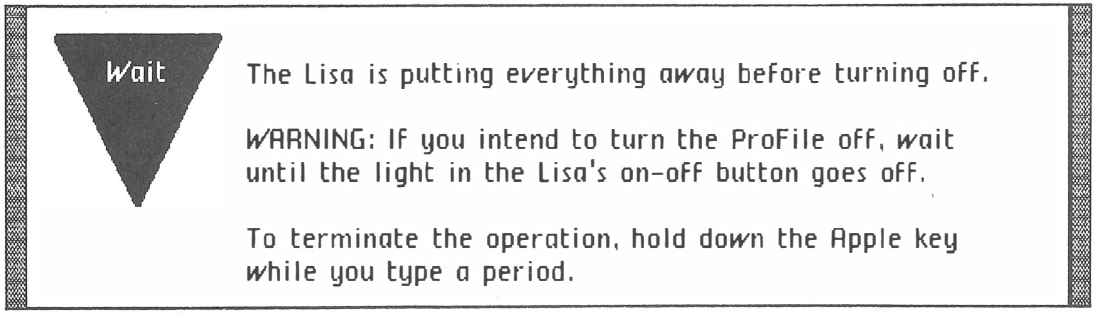
- **Offset connectors** prevent you from putting expansion cards into their slots backwards.
- Because both the loading and ejection of floppies is controlled by software, you can't hurt a floppy disk by turning the machine off while a disk is in the drive, or by pushing the eject button while information is being written to the disk.

Another aspect of idiot-proofing is self-testing, and the Lisa does a lot of it. When you turn a Lisa on, it automatically checks out the CPU, memory and all I/O ports before letting you go to work. While you're working, diagnostics programs scan for problems and warn you about them before any harm is done.

When you turn on the ProFile, it automatically checks out all of the disk surface. If there's any problem, it tries to remedy the situation before letting you know something is wrong.

But the Lisa's most impressive safety feature is what happens when you turn it off. It displays the message you see in Figure 1–3 and automatically saves all the work you've done—additions, deletions, substitutions, whatever—thus making it impossible for you to accidentally lose it. This is really terrific and I've never heard of another computer that does it.

Figure 1–3



Reliability and ease of service

The Lisa is built not to break and to be easy to fix on those rare occasions when it does break. Let's talk about reliability first.

Each Lisa component is thoroughly tested and burned in. To **burn in** something, you turn it on and leave it on for a solid week (or for 200 hours). This is important because components fail much more frequently during the first 200 hours of use—sort of the computer equivalent of infant mortality. If a manufacturer doesn't burn in a system for you, you inevitably end up doing it yourself.

The inside of the Lisa console cabinet is made of metal. This is called **shielding** and it reduces the chance that extraneous electromagnetic "noise" in the environment will interfere with the electronics inside.

The floppy disk drives only spin when you're using them; naturally, this makes them last a lot longer. The ProFile is designed to offer an **MTBF**—"mean [i.e., average] time between failures"—of better than 10,000 hours.

If, in spite of all this, you have a hardware problem with a Lisa, you can deal with it quite readily. All the internal components—including the disk drives and power supply—are modular, so even an ordinary user with no technical expertise can remove them for servicing. The instructions for how to do that are specific, detailed and simple.

The Lisa uses Apple's standard dot-matrix printer, which makes finding ribbons for it less of a chore (especially when you know that the same printer is also sold as the NEC 8023 and the C. Itoh 8510). But getting the ribbon into the little slot is slightly harder than cramming a camel through the eye of a needle. Apple has the incredible gall to call replacing the ribbon "easy"; "impossible" is more like it.

The print head is replaceable by the user (which isn't the case on most dot-matrix printers). I haven't tried to do it, but it's got to be simpler than changing the ribbon.

Last but not least, Apple maintains a toll-free number Lisa users can call with their questions, problems, etc.—(800) 553-4000. Like most such numbers, sometimes it's "temporarily busy." (Are there numbers that are "permanently busy"? Probably there are; I've certainly come across some that seemed to be. But this Apple number seems to be adequately staffed.)

Power

For all its ease of use, the Lisa is a *very* powerful personal computer. Much of the reason for this is the CPU chip it's built around—the Motorola **68000** microprocessor, one of the most highly praised chips of recent years.

Unlike the **eight-bit chips** used in many personal computers (which process data in eight-bit chunks), and unlike the **8088**, the **8/16-bit chip** used in the IBM PC and its imitators (which processes data in sixteen-bit chunks internally but takes it in and sends it out eight bits at a time), the 68000 is a **16/32-bit chip**.

As you may have guessed from its name, a 16/32-bit chip processes data 32 bits at a time, but takes it in and sends it out 16 bits at a time. The biggest computers in the world only process data 64 bits at a time, and many computers that cost millions of dollars are 32-bit machines. So the Lisa is no slouch in terms of raw computational power.

Unfortunately, the Lisa asks far too much of the 68000. Almost 40% of its time is spent simply dealing with the screen, and this is compounded by the slowness of the ProFile, which is constantly being accessed.

This overloading of the 68000 (and overuse of the ProFile) makes the Lisa quite slow in many vital operations—in spite of the fact that there are three other chips to handle input/output functions. Long delays in updating the screen and sending data to the printer are the result; this is the Lisa's single greatest failing. The Lisa 2 software is two to four times as fast, but even that may not be enough; this is an area where the Lisa really needs a lot of improvement.

The Lisa has a lot of memory for a personal computer. A **megabyte** (over one million characters—about 170,000 words) is standard, and expansion up to two megabytes is planned as an option (God only knows what you need two *megabytes* of memory for). Most other personal computers give you much less memory; between 16K and 128K—1/64th to 1/8th as much—is common, and few machines let you expand up to a megabyte even as an option.

The Lisa also provides a lot of permanent storage—although somewhat less than Apple says it does, as we shall see. The two high-density minifloppy disk drives that came built into the Lisa 1 each hold 860K; the Lisa 2's 3½-inch microfloppy holds 400K. The ProFile hard disk drive is supposed to hold five megabytes, but it doesn't. In fact, Apple seems to be playing tricks with some basic computer terms. Let me review them for you:

A **byte** is eight **bits**—the amount of information necessary to define one **character** (a letter, number or symbol). A **kilobyte**, or **K**, is 1024 bytes; a **megabyte**, or **meg**, is 1024K, or 1,048,576 bytes.

The reason for those funny numbers has to do with the fact that computers are based on the **binary number system**, in which all numbers are represented as multiples of 2. Thus, $2 \times 2 = 4$, $2 \times 4 = 8$, and so on up through 16, 32, 64, 128, 256, 512 and 1024 (aha!). Some people have suggested changing the meaning of these terms to make a K equal to exactly a thousand bytes and a meg equal to exactly a million. But that is *not* what these words mean today. Just to make sure, I looked them up in four—count 'em, four—recent computer dictionaries, and all of them (without exception) agreed with the values I've given above.

So, five megabytes is equal to 5120K (5×1024); the ProFile holds 4845K. This comes out to 4.73 megabytes, a shortfall of more than 5%. I'm not splitting hairs here—the difference is 275K and that's a significant amount of storage. Even if you called a million

characters "a megabyte," the ProFile would still fall almost 38K short of the mark.

(Presumably the Lisa 2's built-in "five-megabyte" and "ten-megabyte" hard disks also hold less than those amounts; I have no way of knowing without actually using one. It's easy for you to find out, though—just go into a dealer who has a Lisa 2, get the hard disk display up on the screen, and see how many **blocks** of data it holds. A block is 512 bytes—half a K.)

Apple plays the same game with the Lisa 1's 5¼-inch floppy disk drives. The claim is that the two of them together hold 1.72 megabytes; in fact the correct figure is 1.68 (860K times 2 divided by 1024). Now there's nothing clumsy about saying "1⅔ megabytes" or, for that matter, "1.68 megabytes"; it's certainly no different from saying "1.72 megabytes" (except that it's accurate). Misusing the terms "K" and "megabyte" to your own advantage strikes me as the kind of sleazy marketing that gives us prices like $69.95 instead of $70.

Now I'm told that this sort of—shall we call it "exaggeration"?—is a common practice among hardware manufacturers; Apple simply made it easier for me to discover the truth. One person I spoke to at Apple said that they would call the ProFile a "five-megabyte disk drive" even if it held somewhat more than five megs; they're simply rounding off.

Well, that may be true, and I'm sure this particular person would do that himself. But rounding off doesn't explain "1.72 megabytes." And remember that Apple is the company that claimed in its advertising that it "invented" the personal computer—even though Apple didn't even exist until years after the first personal computers came out. So when someone tells me that Apple would round off 5.1 or 5.2 megabytes to an even 5 megs, I'm tempted to quote the last line of *The Sun Also Rises*: " 'Yes.' . . . 'Isn't it pretty to think so?' "

The disk in the ProFile rotates at 3600 RPM and data is transferred to and from it at five million bits a second—about ten times faster than on a conventional

floppy disk drive. Fast as this sounds, the ProFile is one of the main things that slows the Lisa down. What the Lisa really needs is not more external storage, with its slow access speeds, but a **RAM disk**—a large hunk of extra memory that acts like a disk but accesses much more quickly.

It will become clear as you read on in this book that some of the Lisa's most impressive capabilities are in the area of graphics. Graphics requires a **high-resolution screen** (one with a very fine, detailed picture) and the Lisa definitely has that. Its twelve-inch CRT displays more than a quarter of a million **pixels** (the little dots of light that make up the picture)—364 lines of 720 dots each. On a more practical level, this amounts to 45 lines of 144 characters (most personal computers display 24 lines of 80 characters—less than a third as many).

One of the most significant benefits of this high resolution is the hundreds of different type face, size and style combinations it allows. (I'll give you more details on this when I cover LisaWrite and LisaDraw.)

The Lisa's screen is **bit-mapped**. This means that for every dot on the screen there's a corresponding on/off switch in memory that controls it (so the screen can be updated almost the very instant the computer figures out what it wants to display).

As I mentioned above, the Lisa 1's dot-matrix printer was the same one used with the Apple II and III. But with the Lisa's intelligence behind it, it could work wonders. Because there's a corresponding dot on the printer for every pixel, the printer can make a precise copy of the screen (except that the image on the screen is about 6¼ × 8½ inches and the image on paper is about 7¾ × 10 inches—almost half again as large). I've used the Lisa's ability to **print the screen** to produce most of the illustrations in this book.

Normally, of course, you don't want to reproduce the screen; you want to take what's on the screen and reconfigure it for placement on a sheet of paper. The Lisa does this at three levels of quality. The highest is **high-resolution** mode. There's also **normal mode**—it's

a third as detailed, prints out faster, and is ideal for informal memos and notes. And finally there's **draft mode**—it's much faster (and much uglier); you can only use it for text, not graphics.

Having the choice of three different speeds and three different levels of quality is quite handy; I've shown you the difference between them in Figure 1–4. (I didn't change any of the typefaces in the draft mode sample; that's just the way draft mode handles them. It also eliminates underlining and screws up the spacing between words and sentences. But your text is there to be checked.)

In draft mode, both the Imagewriter and Apple's old dot-matrix printer reach a nominal speed of 120 characters per second, which is equivalent to about 1200 actual words per minute (or 1440 official, typing-class, four-letters-and-a-space words per minute). I say "nominal" because most dot-matrix printers don't actually achieve their advertised speeds (although my subjective impression is that these came close).

In high-resolution mode, the printer sometimes sits and waits for the computer to figure out what it wants to do; this is one of the clearest examples of the 68000 chip being overloaded. Even in normal mode, printouts take a while.

Some people feel that the dot-matrix printer in high-resolution mode produces a better-looking business letter than a formed-character (daisy wheel) printer can. Two clear advantages are that you can easily shift back and forth between type fonts, and you can integrate charts and other graphics into the text.

The Lisa lets you do **background printing**. This means you can work on Document B while the Lisa is printing out Document A "in the background." Unfortunately, although the Lisa's spirit is willing, its electronics are weak. When a printout is in progress, most other activities slow to a crawl. Working while printing in the background demands more patience than it's worth.

Communicating with other computers is yet another thing the Lisa is equipped for. It has two RS-232

Figure 1–4

High-resolution mode:

When a critic wrote (something like): "of course we have to expect this sort of foolishness from Coleridge; after all, all poets are fools," Coleridge responded with the following epigram:

Sir, I admit your general rule,
That every poet is a fool,
But you yourself may serve to show it,
That every fool is not a poet.

Normal mode:

When a critic wrote (something like): "of course we have to expect this sort of foolishness from Coleridge; after all, all poets are fools," Coleridge responded with the following epigram:

Sir, I admit your general rule,
That every poet is a fool,
But you yourself may serve to show it,
That every fool is not a poet.

Draft mode:

When a critic wrote (something like): "of course we have to expect this sort of foolishness from Coleridge; after all, all poets are fools," Coleridge responded with the following epigram:

Sir, I admit your general rule,
That every poet is a fool,
But you yourself may serve to show it,
That every fool is not a poet.

(serial) ports on the rear panel, one of which comes all ready to have an auto-dial, auto-answer modem connected to it. Data can be transmitted as fast as 19,200 bits per second, and the rate is controlled by software. (For more on the Lisa's communications abilities, see Chapter 10.)

All 73 keys on the Lisa's keyboard can be programmed by the software to act as function keys. The **Clear key**, the **Enter key**, the **arrow keys** in the upper right corner of the keyboard, and the **Apple key** (which has a picture of an apple on it) all do different things depending on the software you're running. The **Caps Lock key** works like the Shift Lock key on a typewriter, except that it only affects the letter keys, not the keys with numbers, punctuation or other symbols on them.

The two **Option keys** allow you to produce a whole slew of special characters and symbols. So if you hold the Option key down and hit W, you get Σ (the Greek letter sigma) instead; if you hit 5, you get ∞ (the infinity sign) instead. In this way, the Lisa provides you with all the accent marks and special letters used in French, Spanish, German, Swedish, Danish and Norwegian, as well as symbols used in mathematical and scientific formulas and other useful ones like ®, ™, ©, ¢ and £.

Expandability

As if the Lisa weren't powerful enough in its standard configuration, the system can be expanded extensively and easily. Three expansion slots for special-purpose cards are built into the console. In addition to the two serial ports mentioned above, there's a jack for connecting external high-resolution video monitors or camera imaging systems.

In addition to the built-in parallel port, up to three **parallel interface boards** can be installed in the Lisa's expansion slots. If parallel boards are in all three slots, it's possible to connect six ProFiles and a dot-matrix printer—although, as I said earlier, a RAM disk would be a lot more useful than more external storage.

The parallel board incorporates self-test diagnostics that trouble-shoot many problems. Like all expansion boards for the Lisa, it's easy to install—thanks to **zero insertion force** connectors. (On most computers, you have to push down hard on a board to get it into a slot; on a Lisa, you just pull and twist a rod and that opens the slot for you.)

The Lisa has several other nice little features, like a real-time clock and a built-in speaker with a tone generator that's controlled by software. But the main point is simple: with a few exceptions—like the overloading of the system's capabilities and the slow response time that's the result—the Lisa's hardware is quite well designed.

But the Lisa's software, not its hardware, is what's truly innovative. So let's move on to the next chapter, where I cover that software in some detail.

2 The Lisa's Software and How It's Different from Other Computers'

The Lisa comes with one of two standard software packages—the **Development System**, designed for expert computer programmers who want to write new software for the Lisa, and the **Office System**, designed for people like you and me who want to use already-written programs for specific tasks like word processing, graphics and financial analysis. Since virtually all Lisa users fall into the second group, I'll only discuss the Office System in this chapter.

The best way to give you a sense of what's innovative about the Lisa's software is simply to walk you through its basic concepts. I'll make it a reasonably detailed walk-through—although much less than you need to know to actually use the Lisa with any grace—so you can begin to get a sense of whether the Lisa's approach is what you're looking for, or at least so you can sit down and play with a Lisa in a store without having to go through a lengthy and confusing orientation.

This chapter will also be useful to you if you already own a Lisa (or have definitely decided to get one), because it will get you started using the machine with less anguish than diving right into the Lisa's introductory training program, LisaGuide. Although LisaGuide is better than most training programs, and the Lisa Owner's Guide is better than most computer manuals, they

both have one great weakness: they lack an easy-to-understand overview of the Lisa's basic operations.

Apple says you can learn to "do useful work" on the Lisa in half an hour. So far as I can see, this is only possible in the same way that it's possible to learn to use *any* tool in half an hour—that is, in a very limited and clumsy way. Although certain aspects of the Lisa's operations are simpler and easier to learn than on conventional computers, other aspects are much more complex and confusing.

For example, most computers have just two kinds of files on a disk: **programs**, which tell the computer how to do things, and **data files**, which you fill up with information of your own (text, numbers, or whatever). You use programs to work on data files and that's all you need to understand about the basic structure of things (unless you're doing programming of your own). The Lisa, on the other hand, presents you with a bewildering multiplicity of file types and related concepts—icons, windows, folders, tools, stationery pads, documents, shadows, and so on.

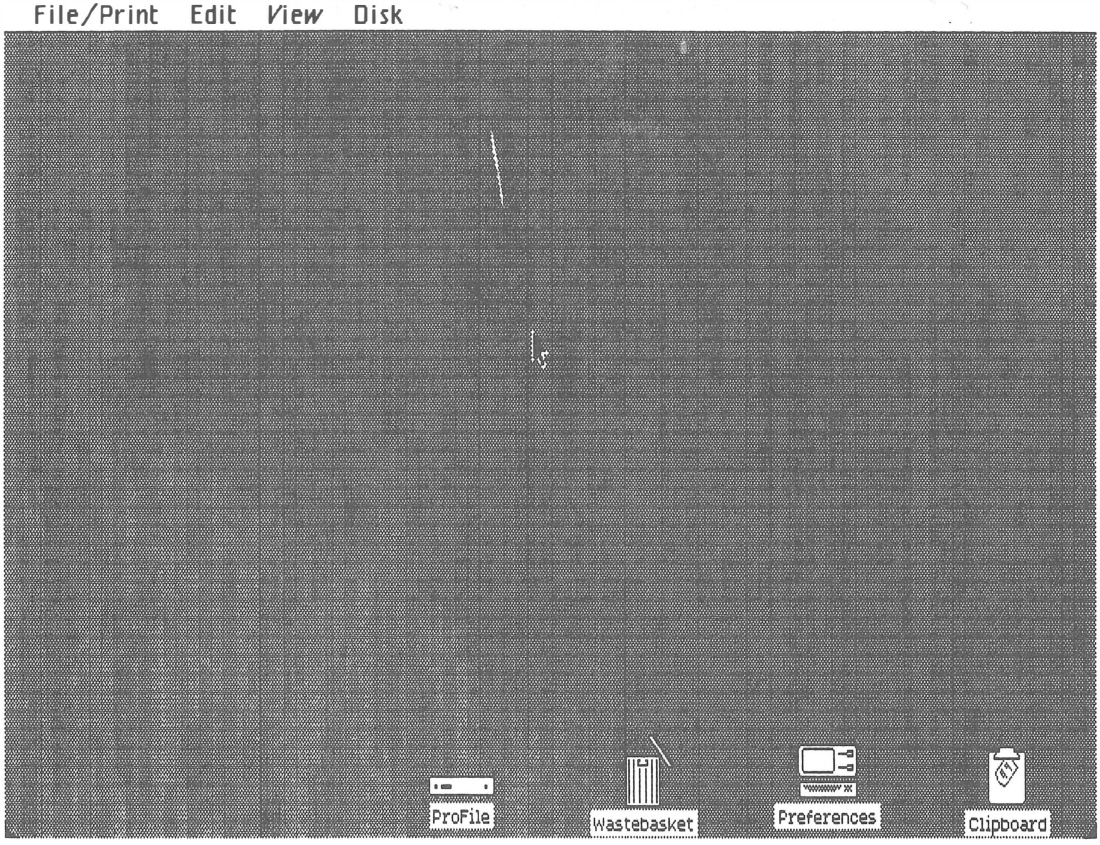
The first of these concepts you encounter is the **Desktop**. The Lisa uses its screen to simulate an actual physical desk top with file folders and other things lying around on it. This is a good example of what's new and unusual about the Lisa's approach—it always tries to present abstract computer activities as if they were concrete, visual and ordinary.

Icons

As you can see from Figure 2–1, the Lisa makes the Desktop grey and the objects white, and it labels each object. For example, there's a little picture of a clipboard that's labeled "Clipboard" and a little picture of a trash can that's labeled "Wastebasket." These pictures are called **icons**.

The way a computer interacts with a user is called its **user interface**. The Lisa's is often informally referred to as "the mouse/icon user interface," because the

Figure 2–1



mouse is its main feature in hardware and icons are its main feature in software.

One of the essential parts of any computer's user interface is its **operating system**—the basic program, or context, within which all other programs operate. Because the Desktop concept is fundamental to the Lisa's user interface, its operating system is called the **Desktop Manager**. It's mostly the Desktop Manager I'll be describing in this chapter, although I'll also refer to other tools that work within it.

The four icons you see in Figure 2–1 are always on the Desktop (assuming that you have a ProFile connected to your Lisa).

Wastebasket is the place where the Lisa puts objects you throw out. They stay in Wastebasket until the room is needed for objects you discard later. This means you can go into Wastebasket and retrieve objects for a while after you've thrown them out. (Some objects—like the ProFile, for example—can't be thrown out. If you put them in Wastebasket, they bounce back out and return to their original position.)

Clipboard holds text or graphics you've deleted from within some object, or that you're in the process of moving from one place to another. You can look into Clipboard but you can't affect its contents in any way.

Since the **Preferences** icon is a picture of a little Lisa, you don't need to be psychic to figure out that it deals with your preferences about the Lisa (basically, it lets you customize a Lisa to your own taste). I'll use Preferences to demonstrate how you **open** an icon—that is, how you gain access to the things inside it, so you can look at them and alter them if you want.

In the middle of the screen in Figure 2–1 is a black arrow. This is the **pointer**. As I mentioned in the last chapter, you use the mouse to move the pointer around the screen. An arrow is only one of the shapes a pointer can take; I'll describe the others as they come up.

(In Figure 2–1, the arrow is pointing toward a small white streak that looks something like a comet or a meteor. This comes from a minor defect in the printer and has nothing at all to do with what actually appears on the screen. You'll also notice that the Desktop is not a consistent tone of grey; that's the printer's fault too. Both of these problems vary from one illustration to the next. Just ignore them; on the Lisa's screen, the Desktop will be a smooth, streak-free grey.)

The Lisa uses a two-step process for almost all of its operations. First you **select** the object you want to do something to, then you tell the Lisa what you want to do to it. You select an icon by moving the pointer to it and then clicking the button on the mouse's back (which I'll call "the mouse button"—or simply "the button"—from now on).

Figure 2–2

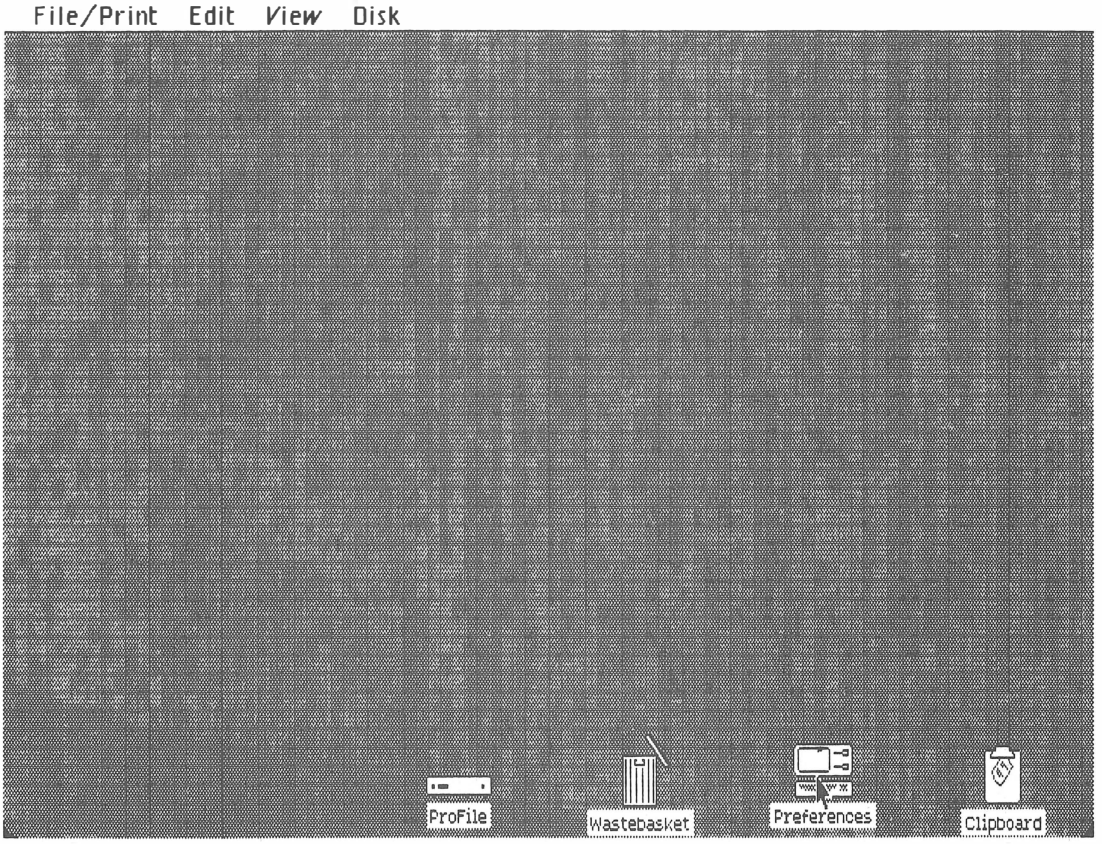
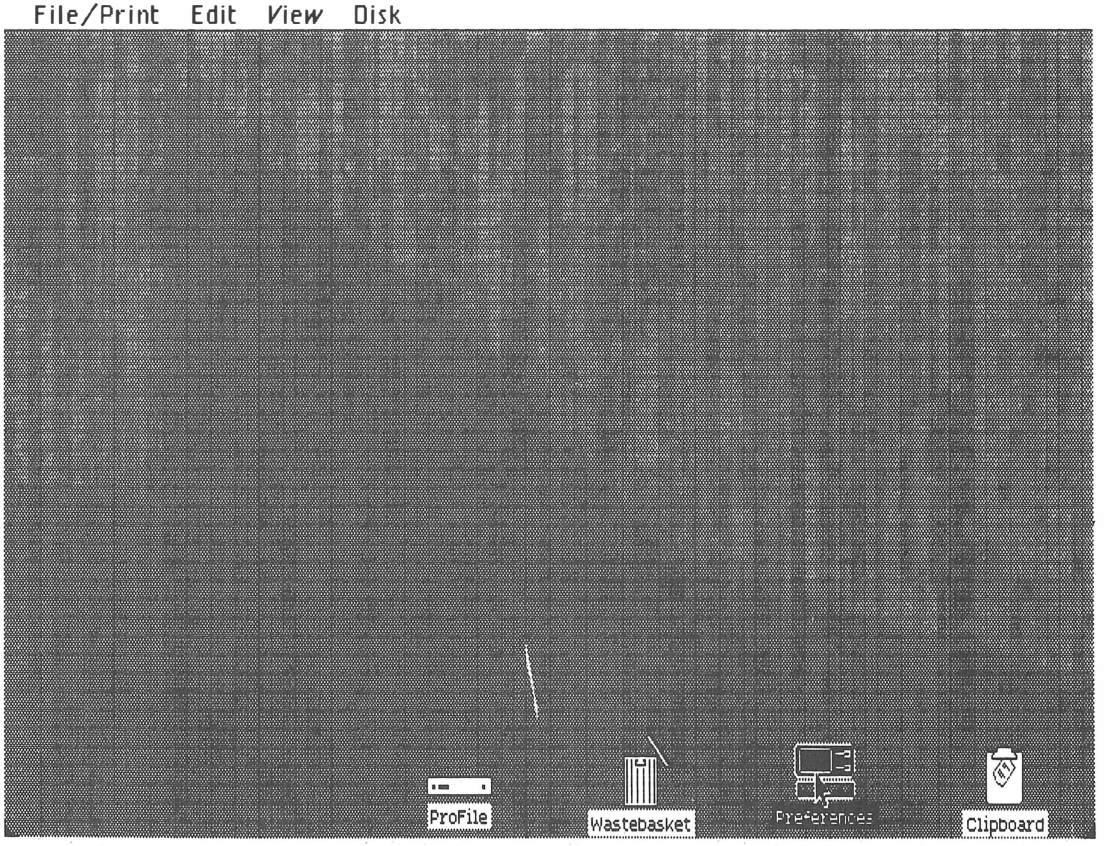


Figure 2–2 shows the pointer in position on the Preferences icon. (On the arrow pointer, it's the tip that counts. All of the arrow can be off the icon, just as long as the tip is in. Conversely, if all of the arrow *except* the tip is on the icon, nothing will happen when you push the mouse button. You can point to either the picture or the label—they're both part of the icon.)

An icon indicates that it's been selected by changing from white to black (or—to be precise—from a black figure on a white ground to a white figure on a black ground). This is called **highlighting**. In all Lisa software, whenever you want to know what is currently selected, you just look for what is highlighted. Figure 2–3 shows how the screen looks after you push the mouse button.

Figure 2–3



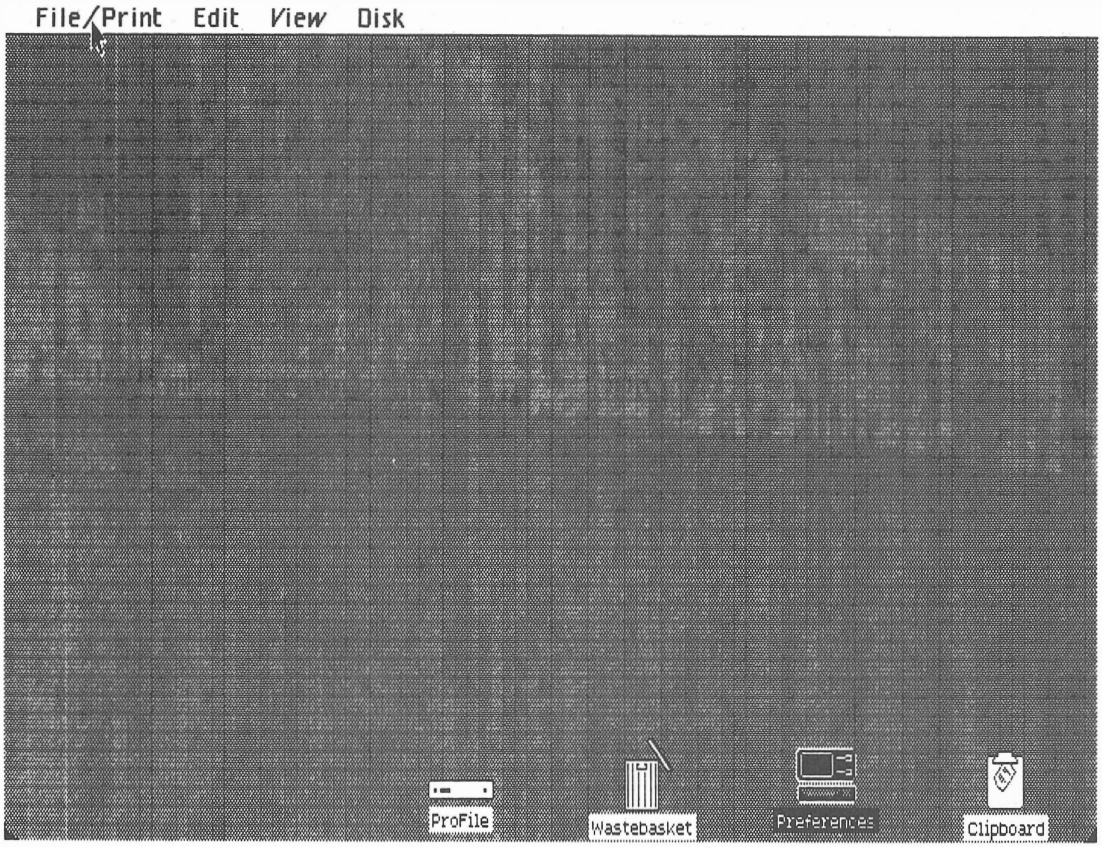
Menus

Now that you've selected Preferences, you have to tell the Lisa what you want to do with it. For that, you need a **menu**.

"Menu" is computerese for a list of commands on the screen. The Lisa's menus are a lot snazzier than most—they pop down onto the screen when you need them, and disappear when you don't. To make a menu pop down, you select its **menu title**.

Menu titles run across the top of the screen, starting from the left side. (The line they do that on is called the **menu bar**.) Four basic menu titles are on the screen now: File/Print, Edit, View and Disk.

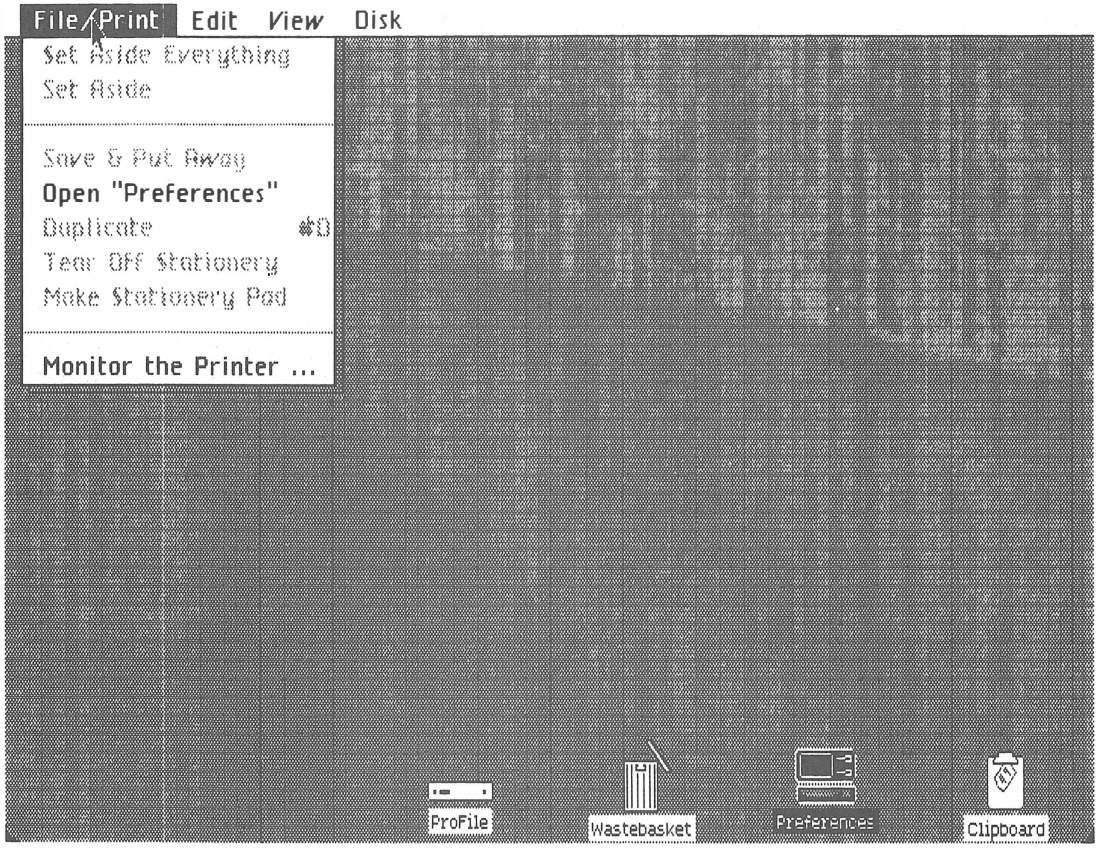
Figure 2–4



To open an icon, you need to get into the **File/Print menu**, so you move the pointer to that title (as in Figure 2–4), then press the mouse button and hold it down. This produces Figure 2–5. (If you press the mouse button and immediately release it, the menu will pop down and pop right up again. This is exciting the first few times you do it, but the thrill fades fast.)

Menus are made up of **menu items**. Not all menu items are active at any one time—you can only select the ones that are in black, not the ones that are grey. Only the items that let you Open "Preferences" and Monitor the Printer are active in Figure 2–5.

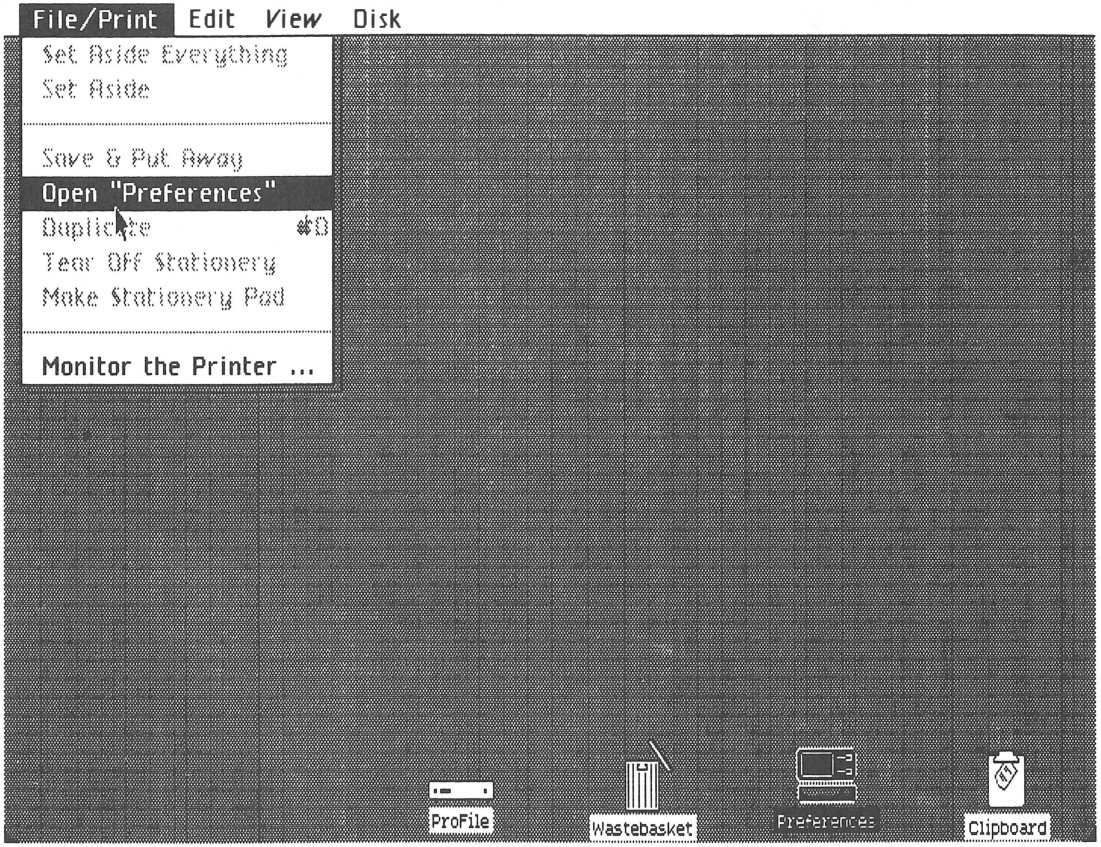
Figure 2–5



The wording of the active menu items changes depending on what's going on. For example, if you'd selected Wastebasket rather than Preferences, the first active menu item would read: Open "Wastebasket".

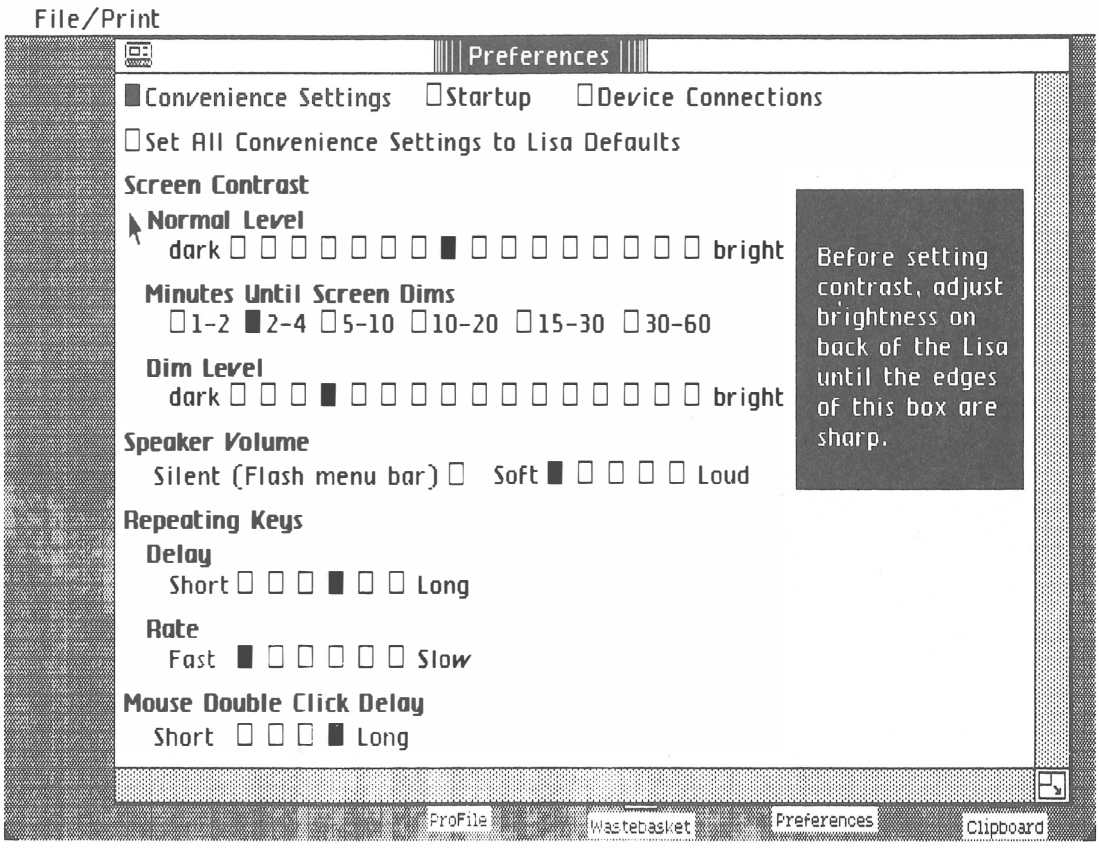
To select a menu item, you move the pointer down the menu while holding the mouse button down. (It doesn't matter if the pointer is on the left, right or in the middle of the menu, as long as it's somewhere in there.) As you pass an active item, it highlights (goes from black letters on a white background to white letters on a black background). Nonactive (grey) menu items don't highlight—they just sit there as the pointer moves past them.

Figure 2–6



When you have Open "Preferences" highlighted (as it is in Figure 2–6), you lift your finger from the mouse button and . . . shazam! . . . the Preferences icon becomes a **window** (Figure 2–7).

Figure 2–7


File/Print
Preferences
Convenience Settings
Startup
Device Connections
Set All Convenience Settings to Lisa Defaults
Screen Contrast
Normal Level
dark
bright
Minutes Until Screen Dims
1-2
2-4
5-10
10-20
15-30
30-60
Dim Level
dark
bright
Speaker Volume
Silent (Flash menu bar)
Soft
Loud
Repeating Keys
Delay
Short
Long
Rate
Fast
Slow
Mouse Double Click Delay
Short
Long
Before setting contrast, adjust brightness on back of the Lisa until the edges of this box are sharp.
ProFile
Wastebasket
Preferences
Clipboard

Windows

As you can see, a window is a big box that fills up a lot of the screen. Not all windows are this large, and you can expand or shrink them (I'll describe how to do that later).

Because the Preferences window is selected (the official term is **active** or **activated**, but it means the same thing as selected), its title—the word "Preferences" at the top—is highlighted. Later on we'll get into situations where several windows are open on the Desktop; only the title of the active window will be highlighted.

Notice that the pointer is just where we left it, on the upper left edge of the screen, although the menu item it was pointing to has disappeared (along with the rest of the File/Print menu).

I won't spend a lot of time explaining what the display in Figure 2–7 is all about. Obviously it allows you to change a number of the Lisa's convenience settings to your own taste. They come set to the Lisa's **defaults** (a default is what you get if you don't ask for something different). The black squares represent the current settings and you can use the pointer to reset them.

The actual settings in Figure 2–7 are not, in every case, the Lisa's defaults; I'd already changed a couple of them before I printed out this screen. For example, the screen contrast (normal level) comes set on the tenth box from the left, instead of the eighth; I moved it because I find black on grey easier to look at than black on white. Once you express a preference, the Lisa remembers it and gives it to you as your own personalized default until you change it again.

To reset a setting, you move the pointer into the appropriate box and click the mouse button. When the pointer enters a box, it changes from an arrow to a check mark (this **check pointer** lets you know you're on the box). In Figure 2–8, I've moved the check pointer into the normal default box for screen contrast. If I clicked the mouse button now, that box would turn black, the eighth box from the left—which is now

Figure 2–8

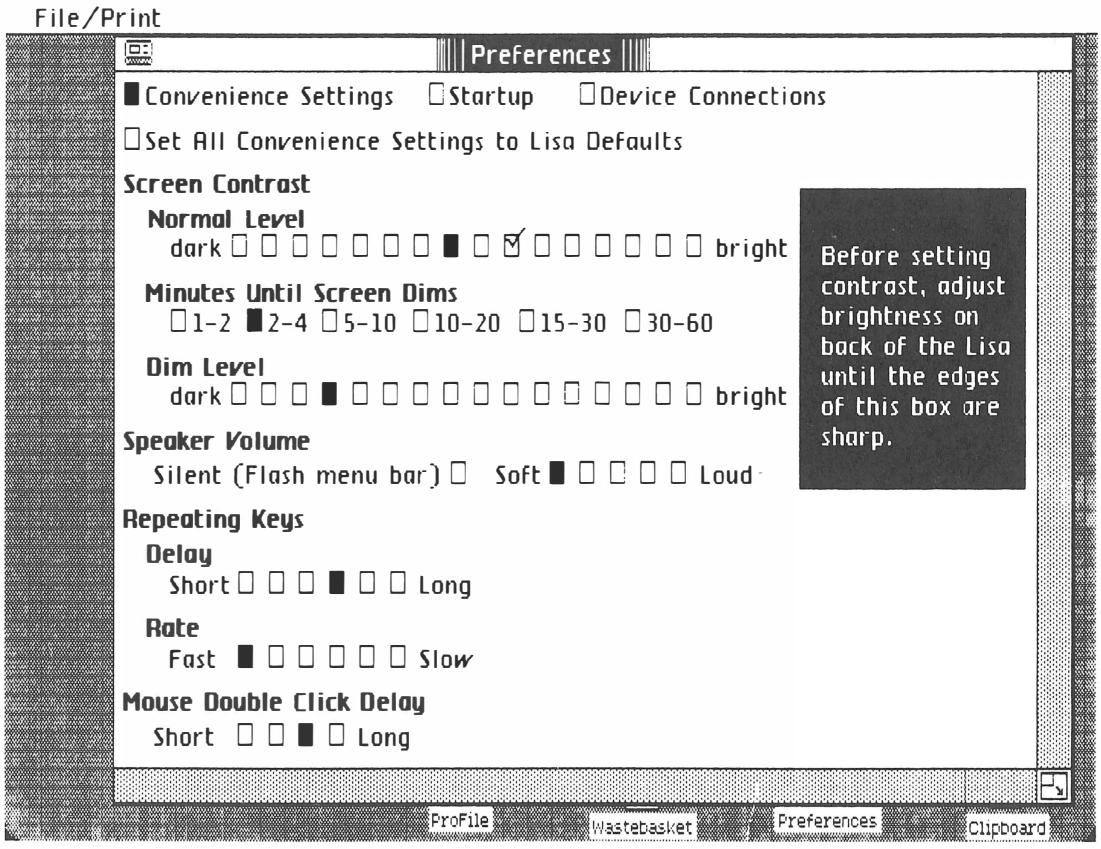
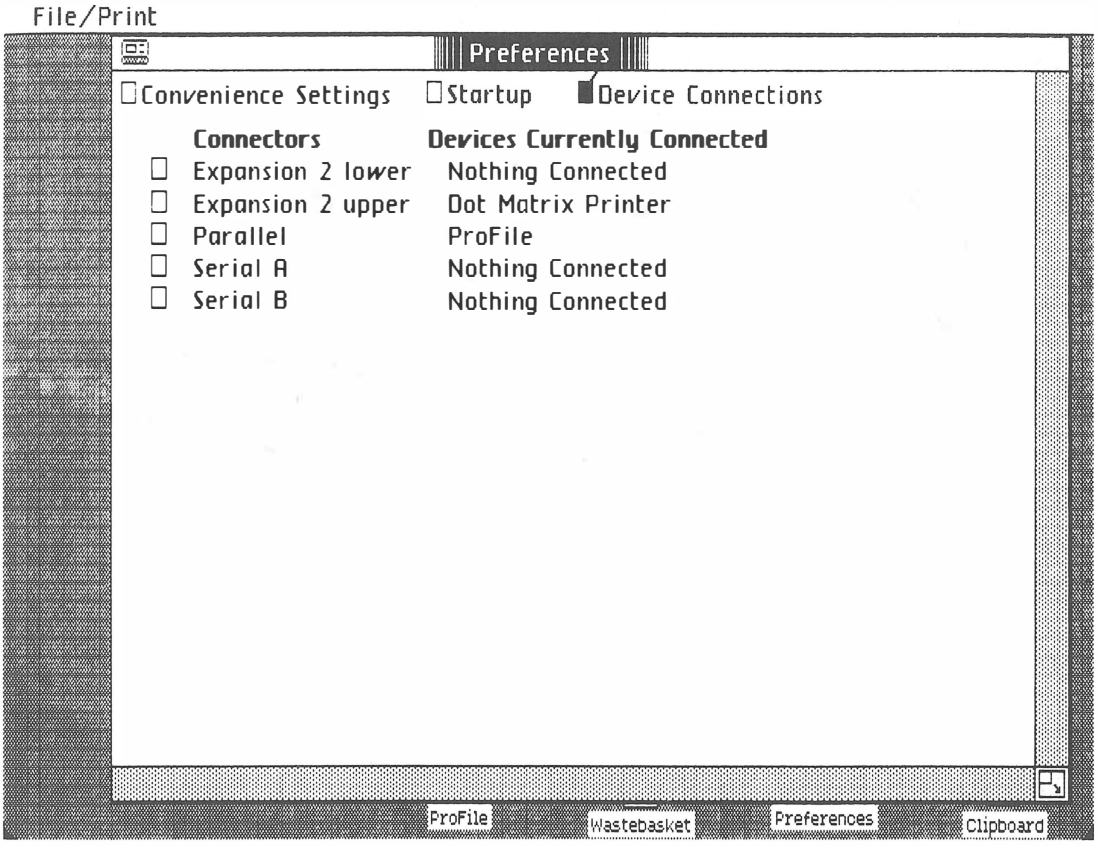

File/Print
Preferences
Convenience Settings
Startup
Device Connections
Set All Convenience Settings to Lisa Defaults
Screen Contrast
Normal Level
dark
bright
Minutes Until Screen Dims
1-2
2-4
5-10
10-20
15-30
30-60
Dim Level
dark
bright
Speaker Volume
Silent (Flash menu bar)
Soft
Loud
Repeating Keys
Delay
Short
Long
Rate
Fast
Slow
Mouse Double Click Delay
Short
Long
Before setting contrast, adjust brightness on back of the Lisa until the edges of this box are sharp.
ProFile
Wastebasket
Preferences
Clipboard

Figure 2–9

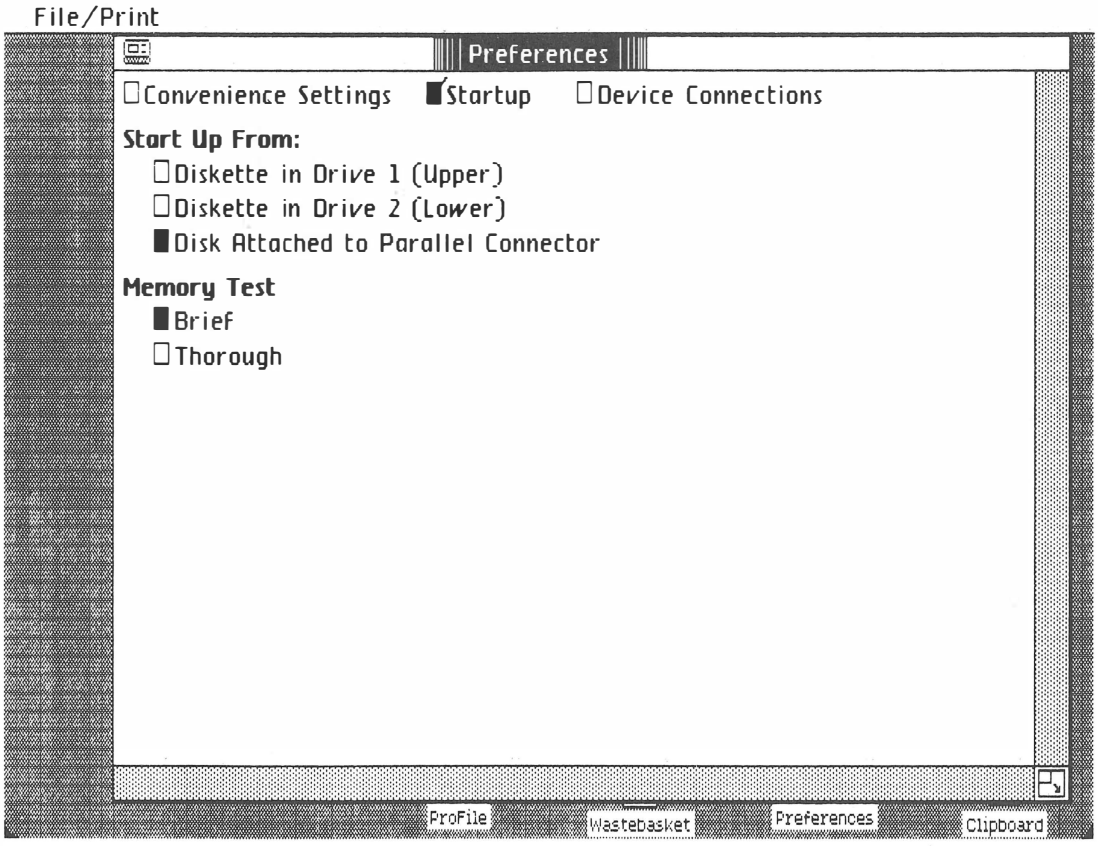


black—would turn white, and the screen contrast would increase.

If you've changed the settings and can't remember what the Lisa originally had them set for, you can use the box on the second line of this window (Set All Convenience Settings to Lisa Defaults).

The line above that switches you between the three different Preferences displays. So if you put the pointer in the Device Connections box and click the mouse button, you get Figure 2–9 (the little line sticking out of the top of the Device Connections box is the top of the check pointer). This display simply records what you've got hooked up to the Lisa (you have to tell it when you connect each device—otherwise it doesn't know).

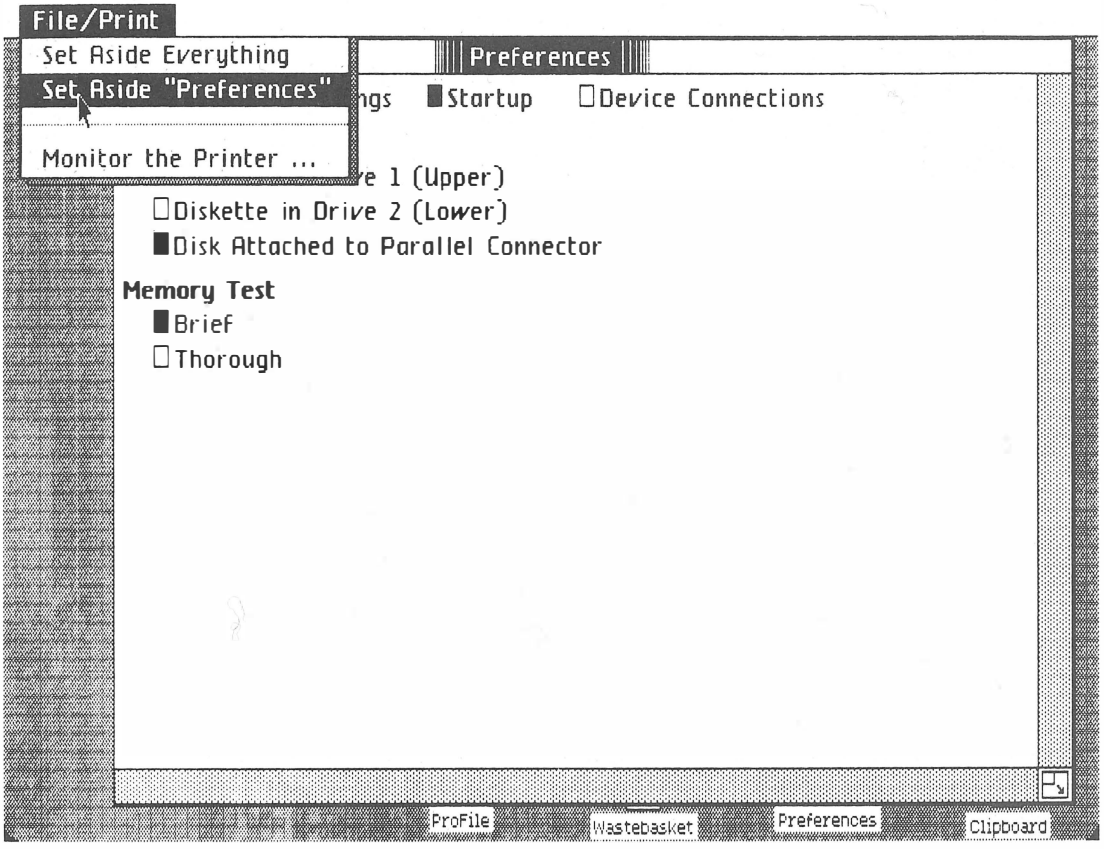
Figure 2–10



To see the Startup display, you put the pointer in that box and click the mouse; that gives you Figure 2–10. This lets you tell the Lisa where it should go for the information it needs when you turn it on (typically, to your ProFile—i.e., "Disk Attached to Parallel Connector"), and also whether you want it to test its memory briefly or thoroughly.

That may have been a bit more than you wanted to know about Preferences. I went into detail so you'd get a sense of how completely the Lisa explains the options it gives you, and how easy those explanations are to understand.

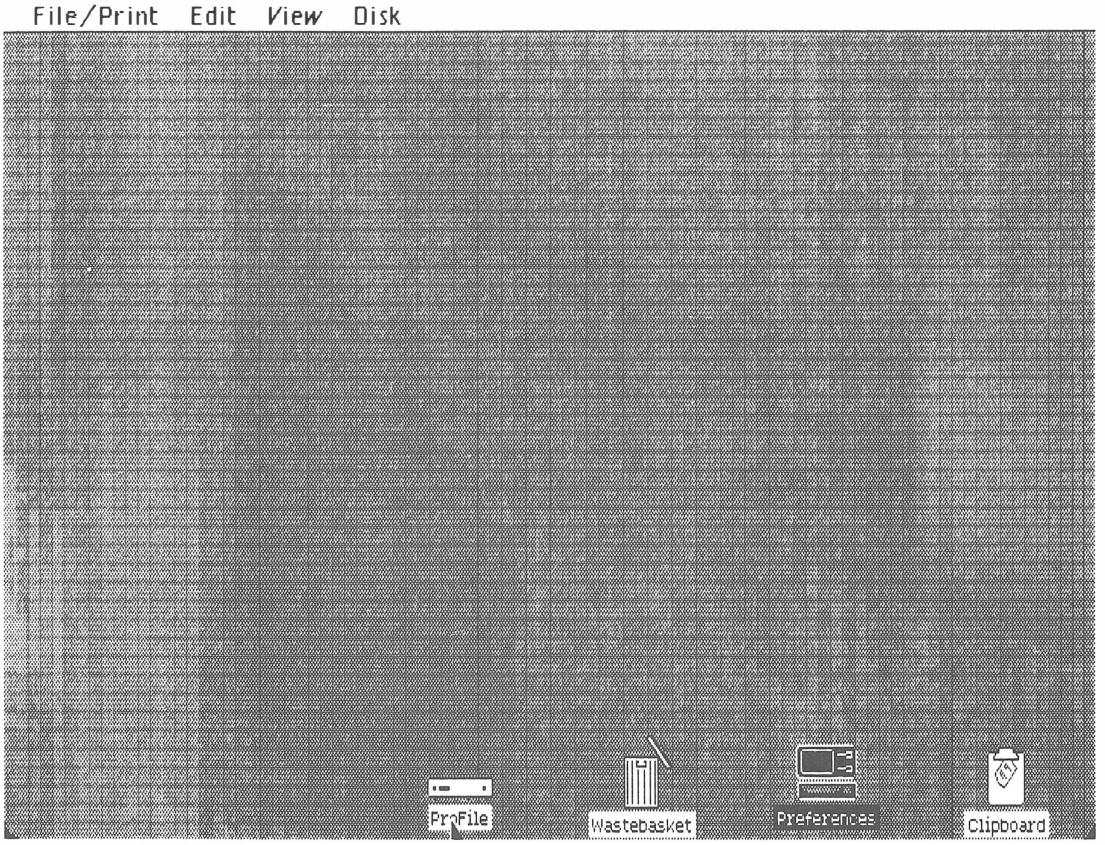
Figure 2–11



To close the Preferences window (that is, to shrink it back into an icon and put it back on the Desktop), you go to the File/Print menu (Figure 2–11). Notice how the menu pops down over the window. You may find displays like this a little confusing at first, what with menus on top of windows on top of the Desktop, but you'll soon get used to it and won't have any problem, even when half a dozen windows are overlapping each other.

Compare the menu items in Figure 2–11 with those in Figure 2–5 to see how they've changed to reflect the current situation. If you go to the File/Print menu when

Figure 2–12


File/Print Edit View Disk
ProFile
Wastebasket
Preferences
Clipboard

no icon is selected—from Figure 2–1, say—all the menu items (except Monitor the Printer) will be grey, and it will be impossible to do anything. *With the Lisa, you always have to select something before you can do anything to it.*

There are usually two ways to close a window, but with Preferences you have Hobson's choice: **Set Aside**. (Later on in the chapter, I'll contrast Set Aside with the other method—Save & Put Away.) Here again, the Lisa is making an analogy with an everyday action—closing a folder and putting it off to the side of your desk so you can open another folder in the middle of your desk.

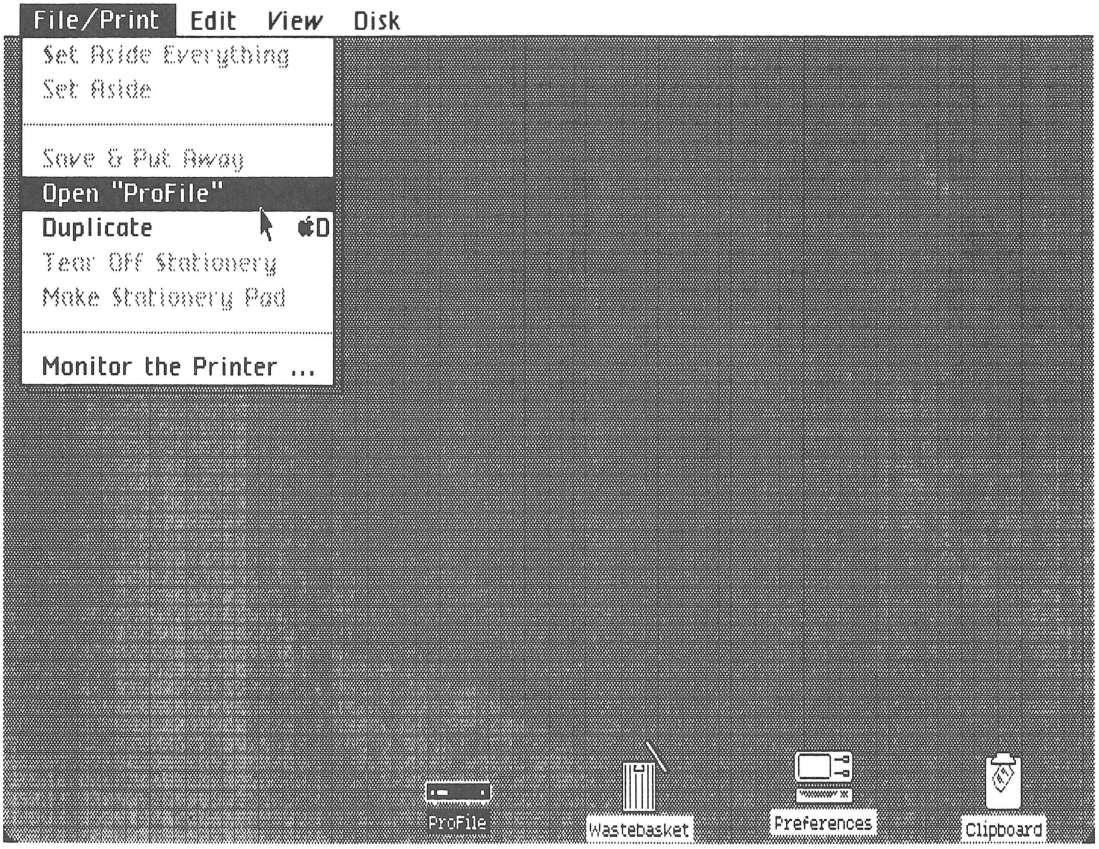
When you Set Aside a window, the Lisa shrinks it into an icon—in a very graphic and dramatic fashion—and puts the icon near the bottom edge of the Desktop. In Figure 2–11, Set Aside "Preferences" is selected on the File/Print menu; Figure 2–12 shows the result.

Notice that the Preferences icon is still highlighted, even though it's been set aside. That's because it's still selected. If you went back up to the File/Print menu, it would look the way it did in Figure 2–5. If you want to open some other icon—or do anything at all with any icon other than Preferences—you have to first select it. (I don't mean to harp on this, but it's the single most confusing thing that comes up when you're learning about the Lisa.)

Most of the work you do with the Lisa is done inside the ProFile icon. That's typically where you keep all your programs and data files. So let's select ProFile. You do that, of course, by moving the pointer to the ProFile icon and clicking the mouse. Now to *open* ProFile, you go to the Print/File menu (Figure 2–13). Notice that the menu has adjusted itself to reflect the fact that ProFile and not Preferences is now selected.

In addition to Open "ProFile" and Monitor the Printer, the menu gives you the option of duplicating the ProFile—that is, of making a backup copy of everything on the disk. (You weren't offered this choice with

Figure 2-13

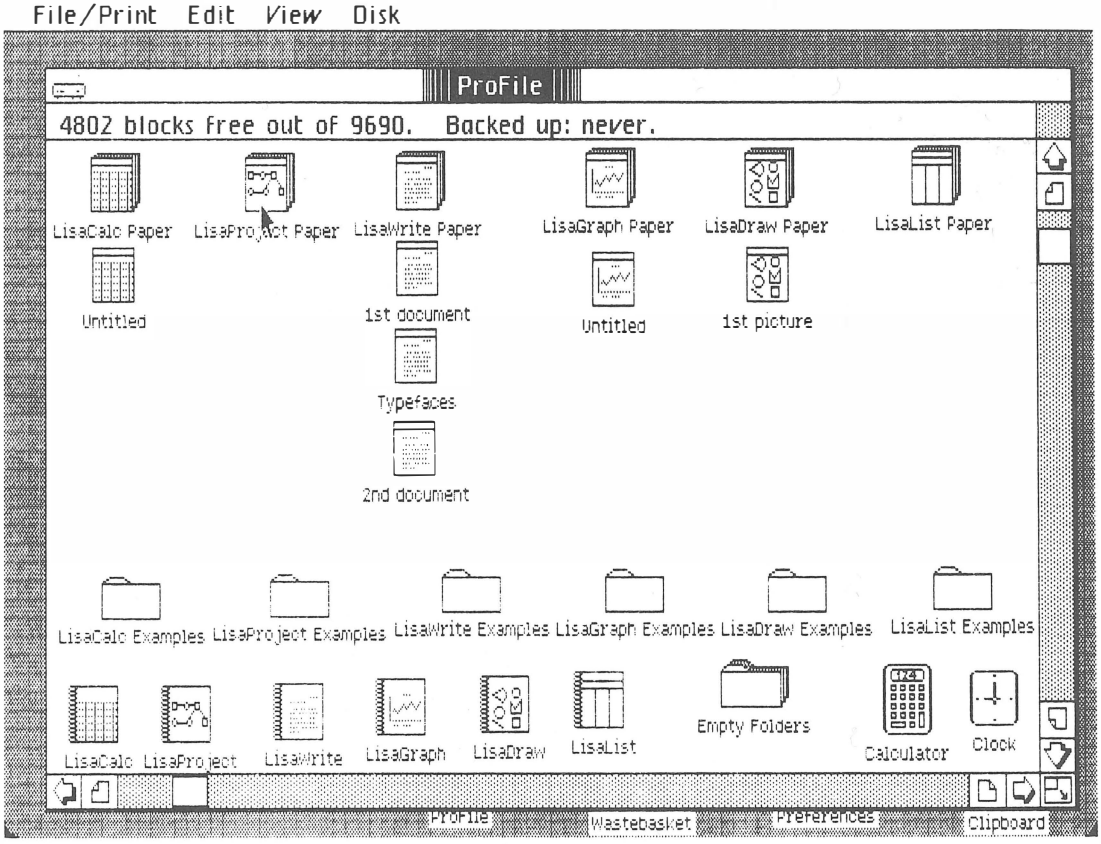


Preferences, because it doesn't make any sense to duplicate Preferences.)

Notice that at the end of the Duplicate line there's an Apple symbol and the letter D. This lets you know that instead of moving the pointer to the Print/File menu and down to the Duplicate line (pressing and releasing the mouse at the appropriate times), you can achieve the same result simply by holding the Apple key and the D key down simultaneously (whenever the ProFile is selected).

Many Lisa functions have substitute commands like this. They're useful when you're at the keyboard and don't want to move your hand over to the mouse.

Figure 2–14



There's also a simpler way of opening an icon than going to the File/Print window—it's called **double-clicking**. Instead of clicking the mouse button once on an icon to select it, you click twice in rapid succession. This eliminates the File/Print menu step.

Either way you choose to open ProFile, when you do you get a display like the one in Figure 2–14—quite different from the displays in the Preferences window (which contain, in effect, a bunch of multiple-choice questions). Instead of boxes to check, the ProFile icon contains *other icons*.

Naturally, the ProFile window won't always look exactly like Figure 2–14. For one thing, the icons dis-

played reflect what's on a particular disk and thus vary from ProFile to ProFile. For another thing, the icons won't always be displayed quite this neatly. They're usually arranged a little sloppily when you first get your ProFile from the dealer. Fortunately for total obsessives like me, it's possible to move them around to straighten them out. (I'll show you how to do that in a moment.)

Tools

Across the bottom of this (compulsively arranged) ProFile window are icons for six tools. **Tool** is simply the Lisa's name for a program; the two words mean the same thing. (To be perfectly precise, "tool" means "applications program," but this subtle distinction needn't concern you.)

As I've mentioned before, the six tools shown here come as standard equipment on every Office Systems Lisa—as does a seventh one, LisaTerminal. Chapters 4 through 10 describe the seven tools individually.

LisaTerminal is missing from these illustrations simply because it hadn't been released when I was writing the book (and printing out these screens). So, although I sometimes refer to the six standard tools in this chapter, remember that now there are seven.

In order to use a tool, its icon must be in the active window. But you can't open these icons, or do anything else with them except duplicate them.

At the right end of the bottom line of icons are two more tools—Calculator and Clock. Calculator duplicates the functions of a (fairly versatile) pocket calculator and Clock duplicates those of a calendar watch.

Opening Clock to find out the date and time has to be the slowest and most troublesome way of doing that imaginable; how many people can afford a Lisa but can't afford a $10 digital watch? Clock's real purpose makes more sense—it tags each piece of your work with the date and time you created it and the date and time you last worked on it.

Clock and Calculator appear on the Desktop when you first fire up your Lisa, but a lot of people (including

myself, obviously) move them over to the ProFile. It doesn't make a lot of difference where they're kept, since you rarely need to open either one of them (although people who are touch-typists on a numeric keypad may find themselves using Calculator fairly frequently).

On the next line up there's a row of individual **folders**, each of which corresponds to one of the six standard tools. These hold the examples that teach you how to use the tools, and are referred to in their manuals. (There's also an Empty Folders icon on the bottom line; I'll explain what that's all about toward the end of the chapter.)

Near the top of the screen is a line that says, "4802 blocks free out of 9690. Backed up: never." A **block** is a measure of storage space equal to 512 characters—half a **K**, about 85 words. (As I pointed out in Chapter 1, 9690 × 512 bytes doesn't actually add up to the five megabytes the ProFile is supposed to hold.)

You can see that I've used slightly more than half the space available on my ProFile. That's why I've never backed up the ProFile (made a duplicate of everything on it)—there isn't room on this one, and I don't have another one to do it onto. (Of course it's also possible to back up onto floppies, and you should do that with any important document.)

On the line of icons running across the top of the window are **stationery pads** for the six standard tools. When you want to use one of these tools, you begin by "tearing off a sheet" from an appropriate pad. Each pad has a distinctive design on it and sheets torn off from it retain this design. As you can see, I've torn off one sheet each of LisaCalc Paper, LisaGraph Paper and LisaDraw Paper and placed them under their respective pads; under LisaWrite Paper are three such sheets (making it obvious where my interests lie).

Documents

Each of these torn-off sheets represents a **document**. Document is the Lisa's name for a **data file**—any single piece of work (writing, drawing, calculations or what-

Figure 2–15

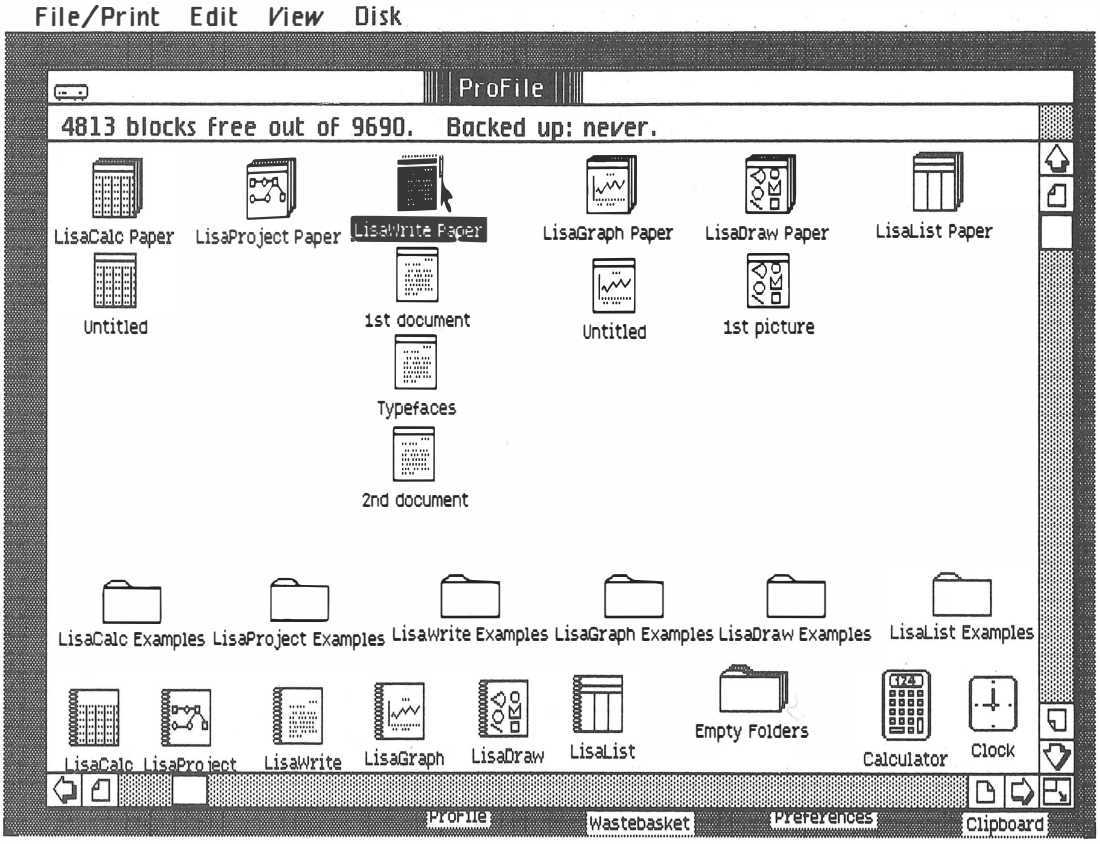


Figure 2–16

ever) you call by one name and handle as one unit. The distinctive design on the icon of any document tells you what tool was used to create it.

The Lisa's tools are **integrated** to some extent—that is, you can move certain material from one kind of document to another. For example, you can move a LisaGraph graph or a LisaProject chart into a LisaDraw document, and you can move a LisaCalc spreadsheet, a LisaGraph table or a Calculator tape into a LisaWrite document. But you can't move LisaDraw graphics or LisaList material into any other kind of document. (Full details of what you can and can't do are given in the manuals for each tool).

Let's create another LisaWrite document, so you can see how it's done. (The procedure is the same no matter which tool you use; I picked LisaWrite because it's the simplest and least confusing.)

First you select the LisaWrite Paper stationery pad (Figure 2–15). Then you go to the File/Print menu (Figure 2–16) and select the **Tear Off Stationery** menu item which has miraculously been activated (it happened when you selected a stationery pad, of course). Next the Lisa tells you to wait while it creates the new document (Figure 2–17).

Figure 2–17

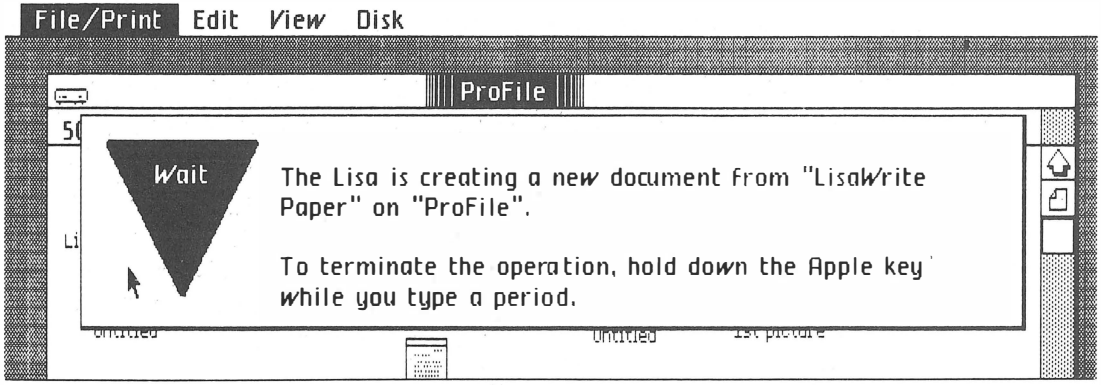
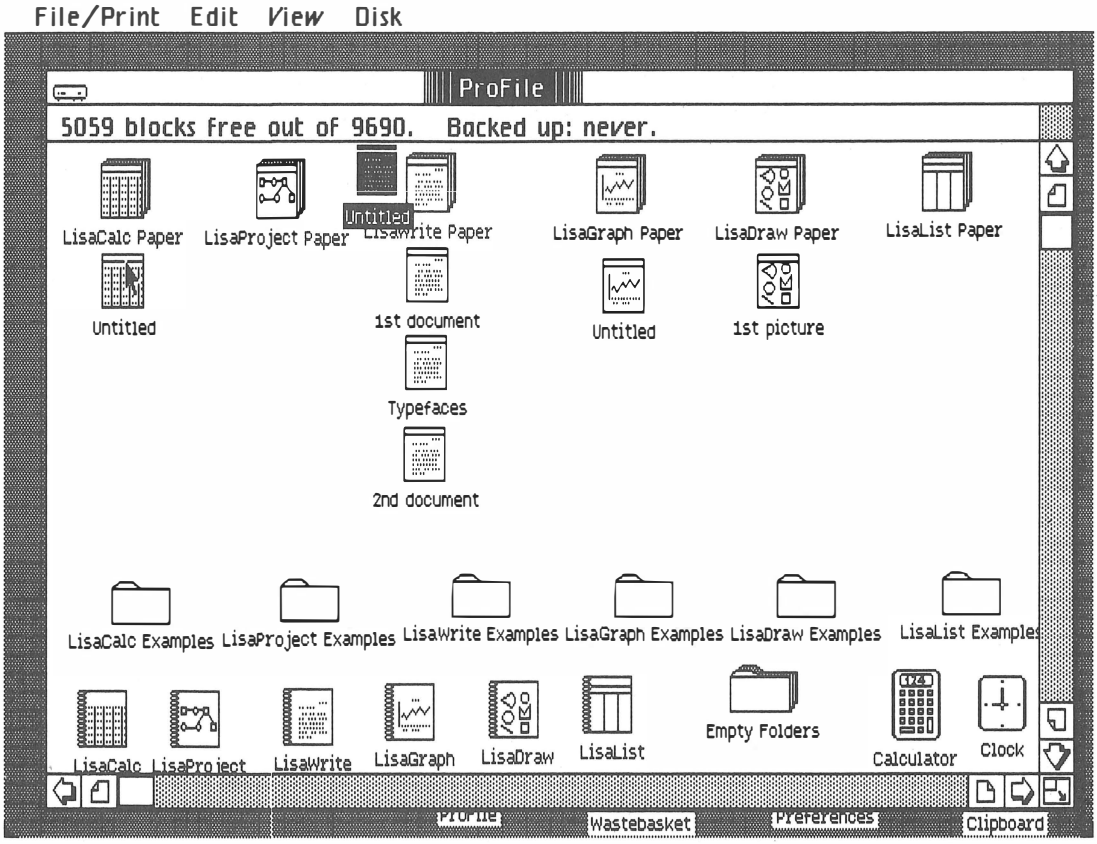


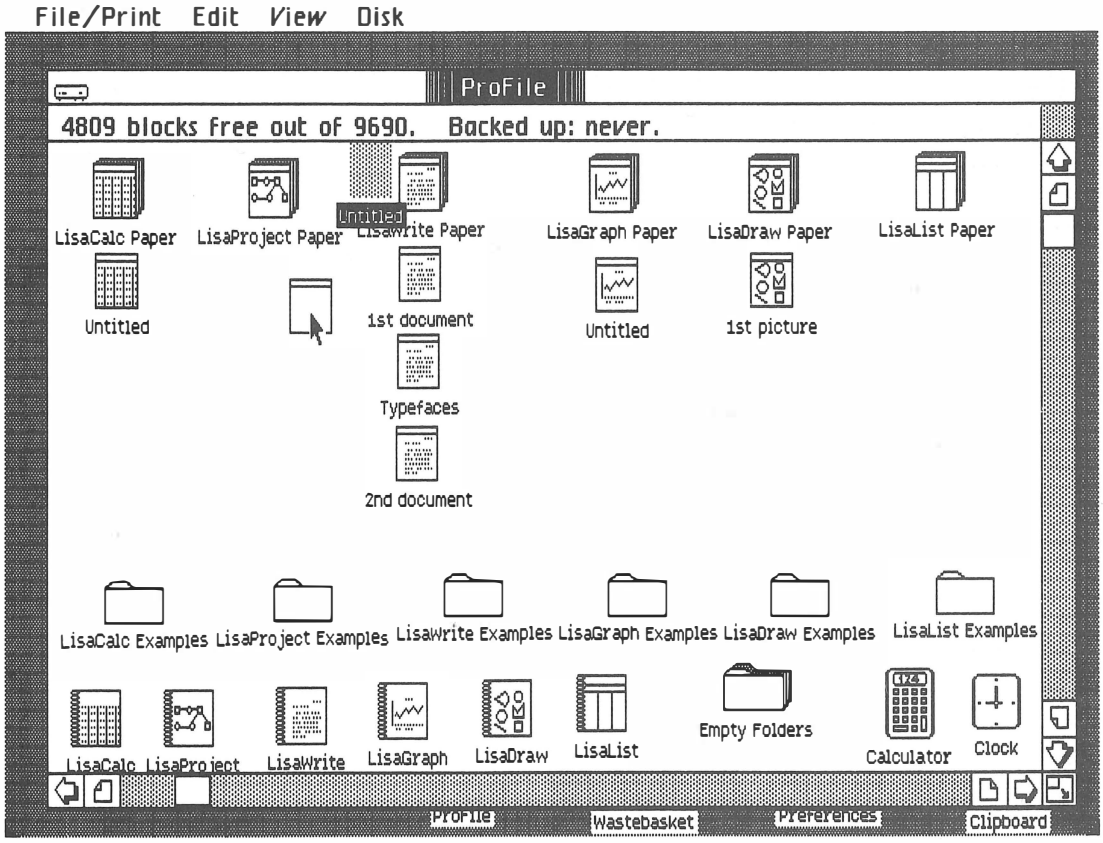
Figure 2–18



The pointer looks like an arrow in Figure 2–17, but on the screen it appears as an **hourglass**. Whenever the Lisa makes you wait more than a few seconds, it changes the pointer into an hourglass to let you know that it can't respond to any instructions for the time being. This is just another example of the Lisa's thoroughgoing concern for your needs and its attempt to make sure you never feel bewildered or lost.

In Figure 2–18 you see how the screen looks when the process is finished. (Notice that the new document icon, labeled "Untitled", is highlighted. That's because you selected it when you told the Lisa to create it.)

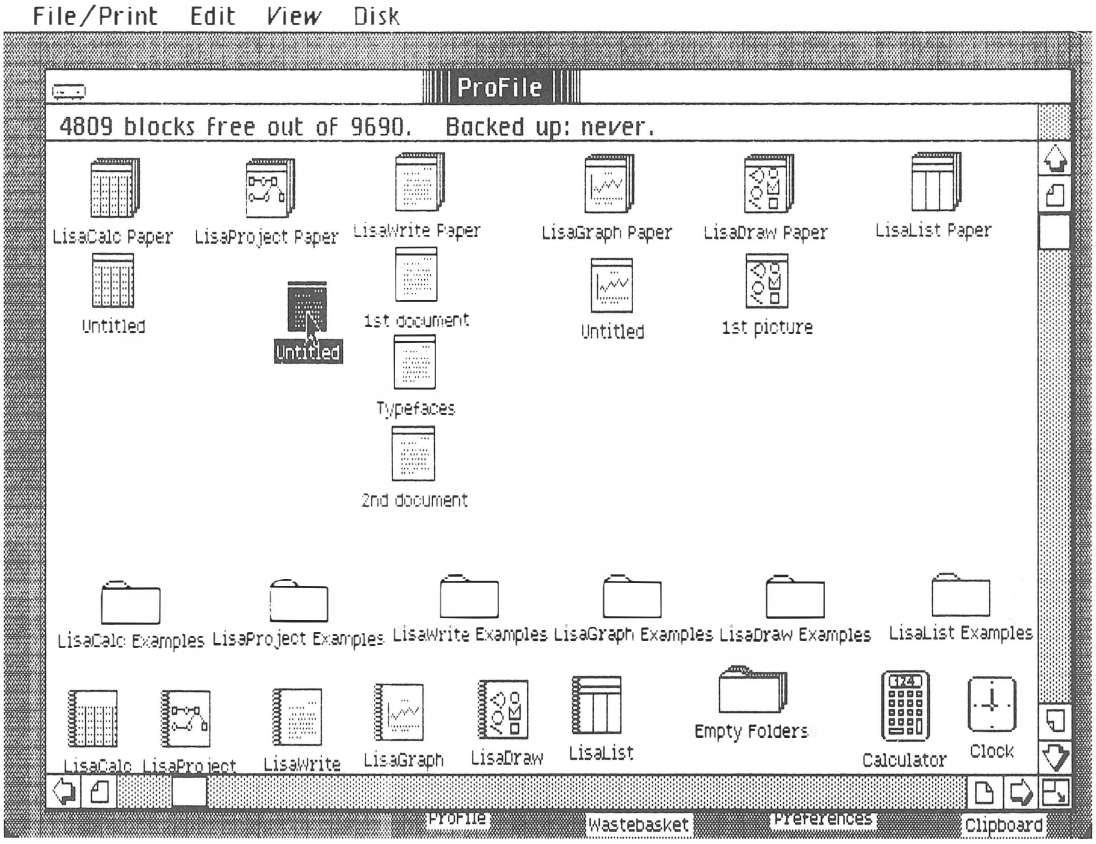
Figure 2–19



Now there are (at least) two things you want to do with this new document. One is to move it so it isn't blocking the LisaWrite Paper icon. Another is to give it a somewhat snappier title than "Untitled." You can do these in either order, but let's move the icon first.

The Lisa makes this easy. You just put the pointer on it, then push the mouse button and hold it down as you move the icon to the new location (Figure 2–19). This is officially called **grasping**, but I—like many other Lisa users—call it **grabbing** ("grasp" being one of those words that's on its way out of common speech). Sometimes it is also called **dragging**, which is another good word for it. The Lisa leaves a **shadow** in the icon's original location until you release the button. Then the

Figure 2–20

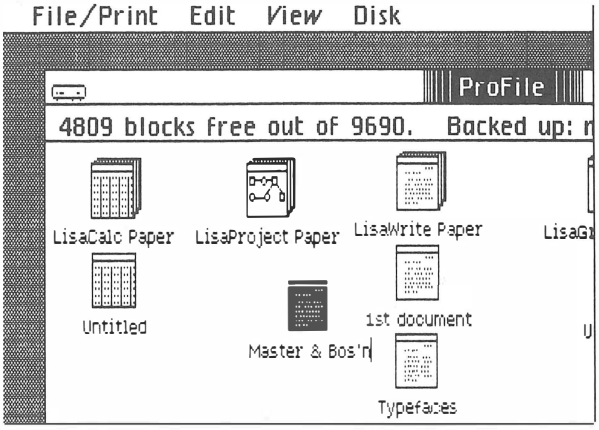


icon appears in the new location and the shadow disappears (Figure 2–20).

Now to change the title—that's also quite easy. Just as long as the icon is selected, all you have to do is start typing. The moment you hit a key, the present title disappears, and the letter you typed appears on the screen, followed by a thin flashing vertical bar. This is called the **insertion point** (despite the fact that it's not a point but a line). You can see it at the end of the new title in Figure 2–21 (although naturally you can't see it flash).

Whenever you're entering text, in any Lisa program, the insertion point indicates where the next letter will appear.

Figure 2–21

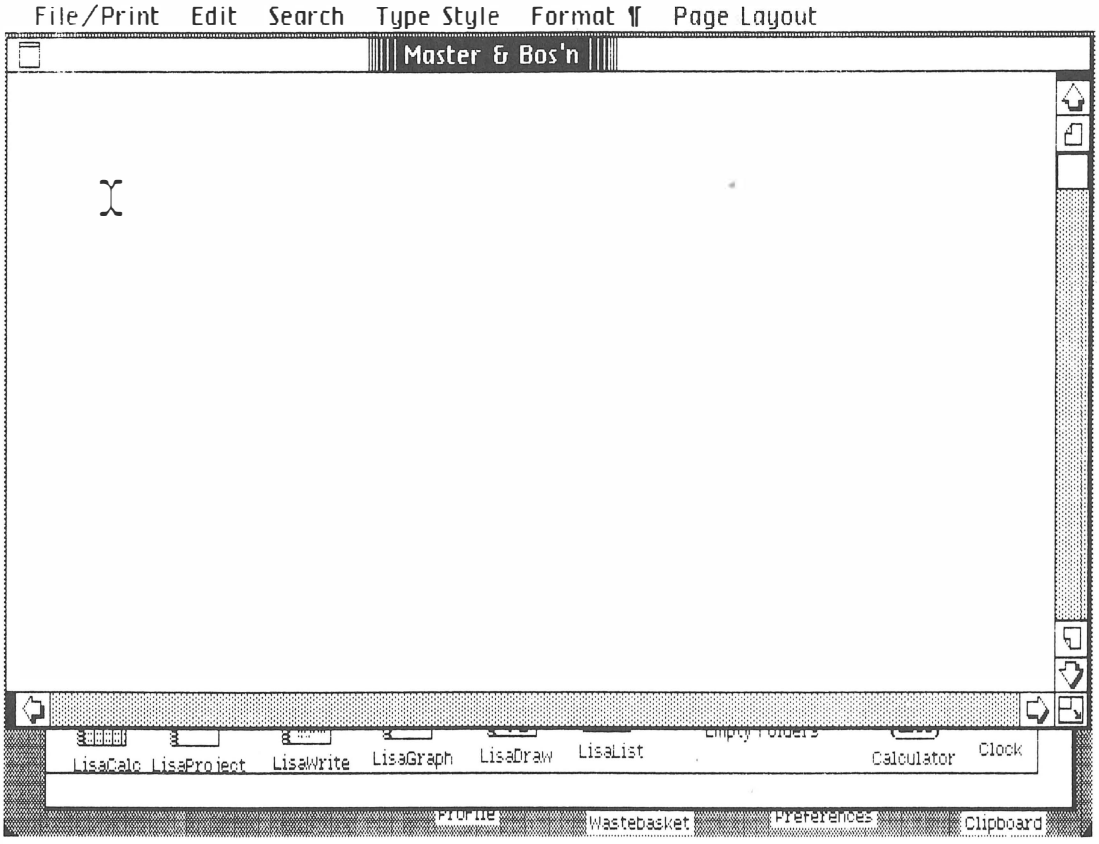


"Master & Bos'n" refers to one of my favorite poems; it has the highest percentage of great lines—over 50% by my scorecard—of any poem I know (although its view of the world is pretty bleak).

Once you've typed in the new title, you go to our old favorite, the File/Print menu (Figure 2–22), and select Open "Master & Bos'n."

Figure 2–22

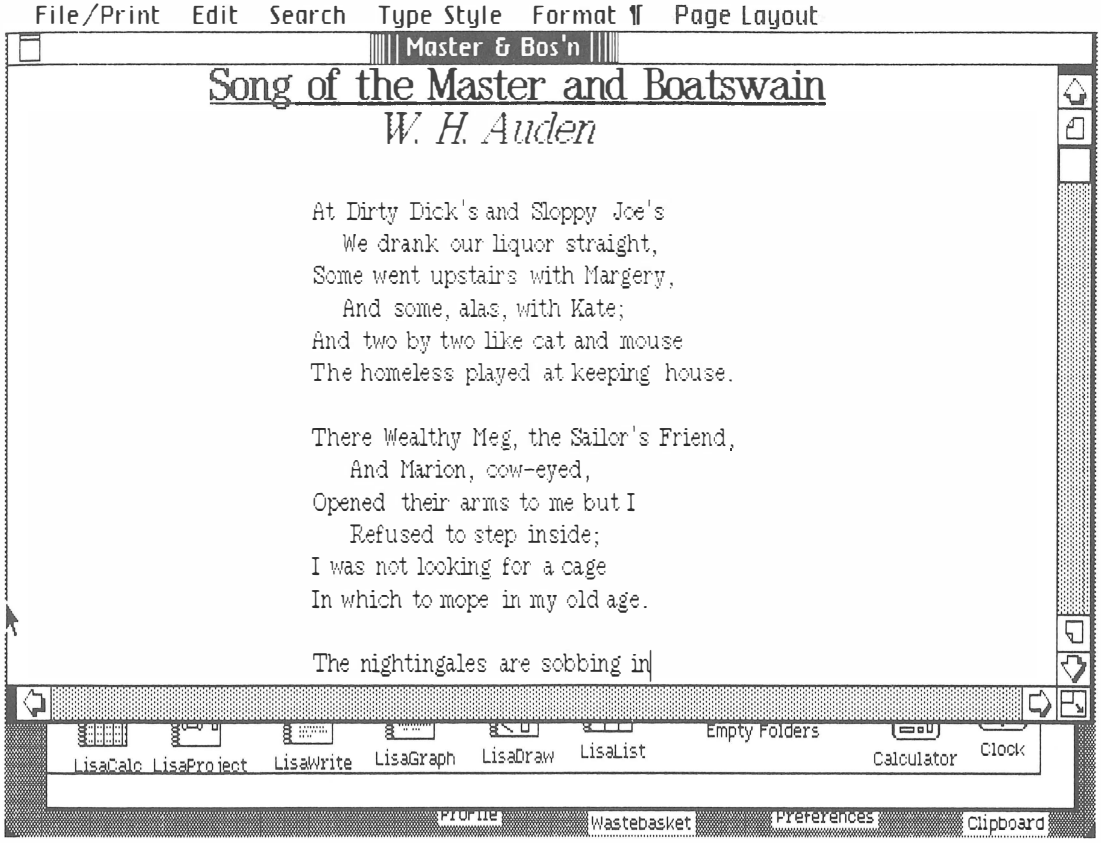
Figure 2–23



One of the nicest things about the Lisa is the way it makes you feel that it cares about you. Now obviously it's no great trick to have the items on the File/Print menu change when you select a new icon or window (or when you change the title of whatever's selected), but there's something that feels almost magical about popping that menu down and seeing that it's already anticipated your needs. I guess you could call this good psychological engineering.

Anyway, when you open this new document you get Figure 2–23. Notice that the Master & Bos'n window has been placed over the ProFile window; you can see a little of the ProFile window at the bottom of the screen (and, at the very bottom, a sliver of the Desktop peeking

Figure 2–24



out beneath *it*). As I said earlier, the Lisa lets you put one window on top of another, just as you would with papers on your desk, even to the point of totally obscuring what's underneath.

Master & Bos'n is on top because it's the active (selected) window. (Another way to tell it's active: its title is highlighted.) Later on in this chapter I'll tell you how you can retrieve windows that have been buried.

There's nothing in the Master & Bos'n window so far, except for something that looks like a stylized cross section of an I-beam. This is the **text pointer**—whenever it appears, all you have to do to enter text is click the mouse and start typing. That's what I did to produce Figure 2–24.

The text pointer deposits the insertion point right below its vertical bar. Once you've got the insertion point on the screen, it doesn't matter where you put the pointer. Back in the '60s, there was an expression that went: "out in left field with prunes in your teeth." That's where the pointer is in Figure 2–24, but it doesn't make any difference, because the pointer doesn't affect anything when you're entering text. If you click the mouse button, however, the insertion point will move to wherever the pointer is.

(By the way, a "master" is the captain of a merchant ship; the name is short for "master mariner." A "boatswain" is the guy in charge of the deck crew on a ship, as well as its rigging, anchors and cables; the name is pronounced—and often spelled—"bos'n.")

Scrolling

You're obviously going to want to create documents that are bigger than one window. When you reach the bottom of the window, the Lisa automatically moves your text up under the top of the window to create space at the bottom (as it's done in Figure 2–25). This is called **scrolling**.

You can also scroll the contents of a window yourself; in fact, the Lisa gives you three separate ways to do it. You may have noticed that whatever window is active has a grey bar on its right edge and another one on its bottom. These are called **scroll bars** and they contain a number of mysterious symbols, which I'll now explain.

In the right scroll bar in Figure 2–25, there's a square white box (just opposite the line that reads "And Marion, cow-eyed,"). This is an **elevator**; it indicates how what's presently shown in the window relates to the whole document.

In Figure 2–24, the elevator is all the way at the top of the grey bar. That's because in Figure 2–24, we're right at the beginning of the document. In Figure 2–25, however, we're farther down, and the elevator has moved to indicate that fact.

Figure 2–25

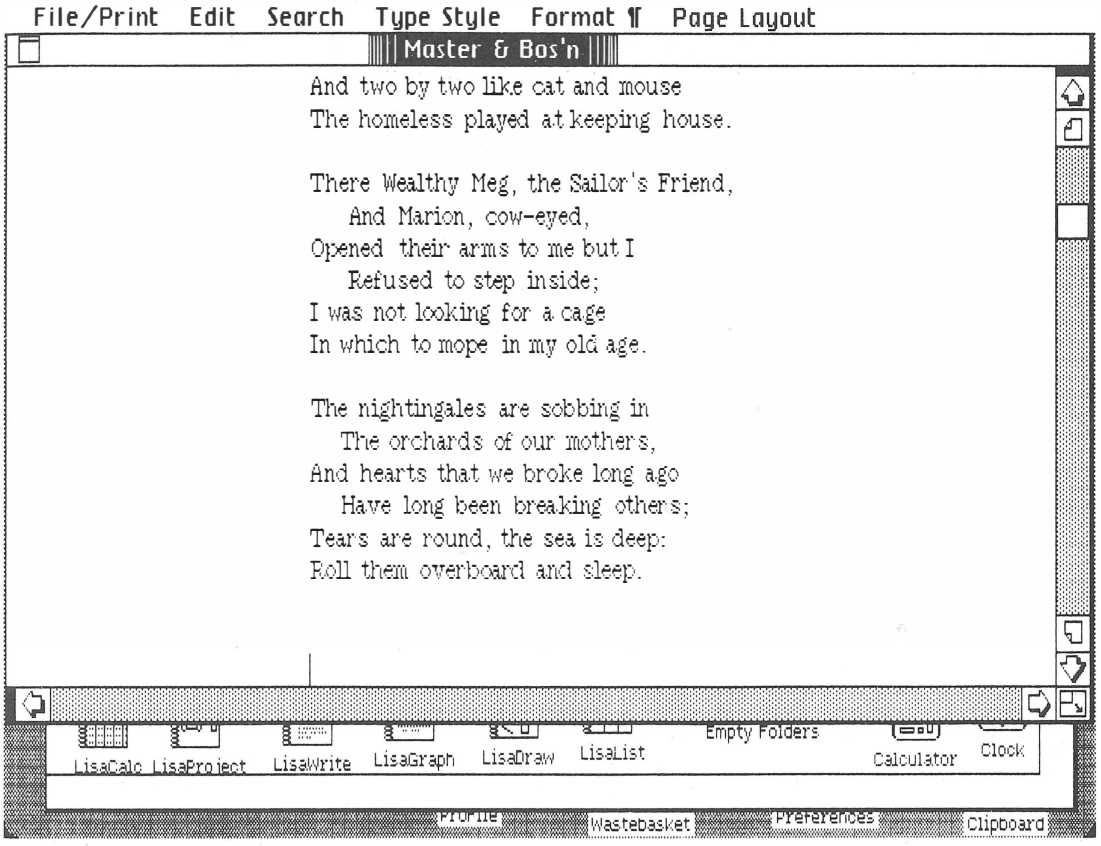
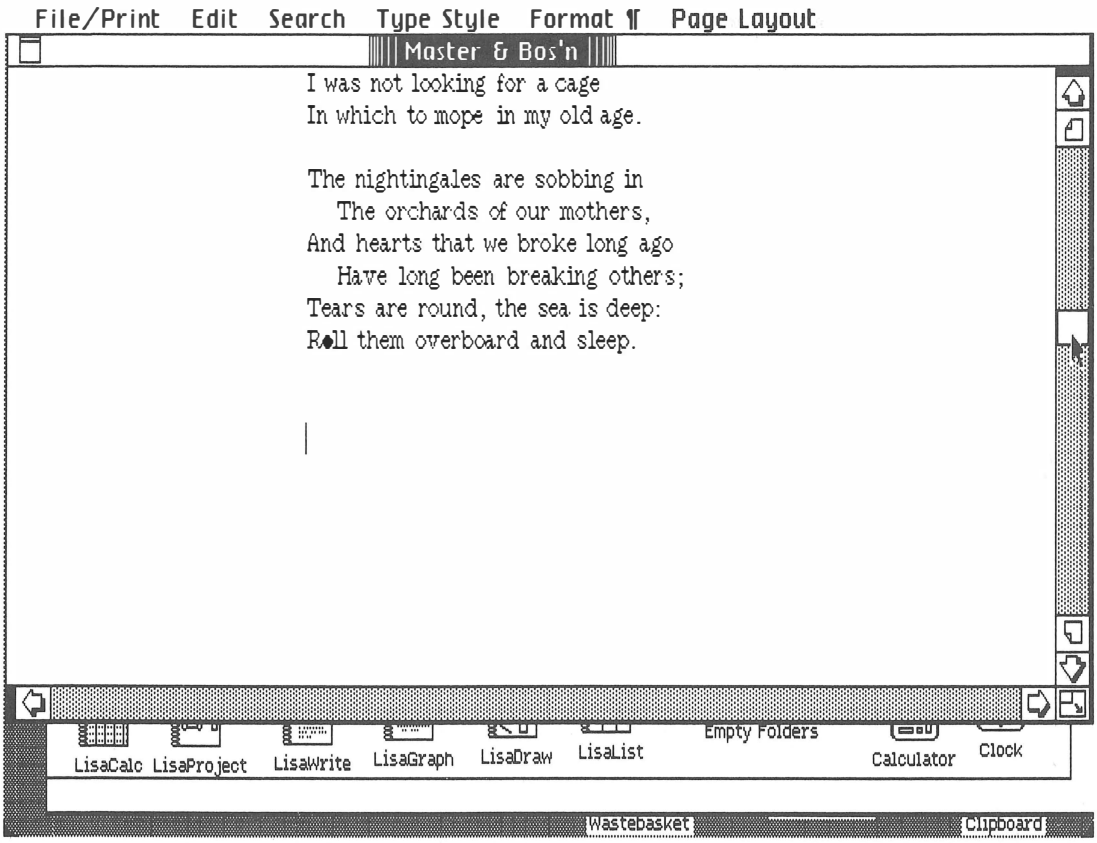

File/Print Edit Search Type Style Format ¶ Page Layout
Master & Bos'n
And two by two like cat and mouse
The homeless played at keeping house.
There Wealthy Meg, the Sailor's Friend,
And Marion, cow-eyed,
Opened their arms to me but I
Refused to step inside;
I was not looking for a cage
In which to mope in my old age.
The nightingales are sobbing in
The orchards of our mothers,
And hearts that we broke long ago
Have long been breaking others;
Tears are round, the sea is deep:
Roll them overboard and sleep.
LisaCalc
LisaProject
LisaWrite
LisaGraph
LisaDraw
LisaList
Empty Folders
Calculator
Clock
Profile
Wastebasket
Preferences
Clipboard

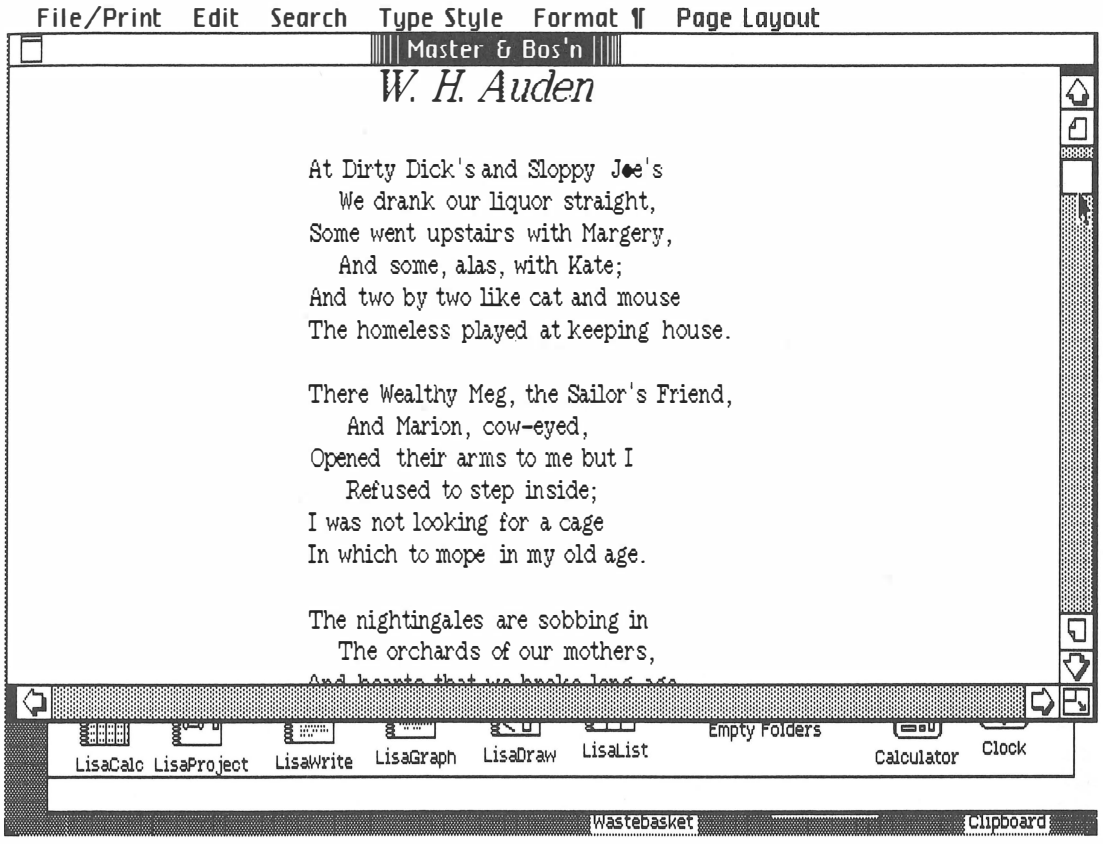
Figure 2–26



You can move the elevator (and therefore scroll the document) yourself. You do that by grabbing the elevator (putting the pointer on it and holding the button down) and moving it where you want it. When you release the button, the text scrolls down (Figure 2–26). You can also move the elevator, and therefore scroll, in the opposite direction—as I did to create Figure 2–27.

LisaWrite has only a vertical elevator, but the other tools (and the Desktop Manager) have elevators in the horizontal scroll bar as well. These horizontal elevators work the same way, scrolling a document that is wider than the window into view.

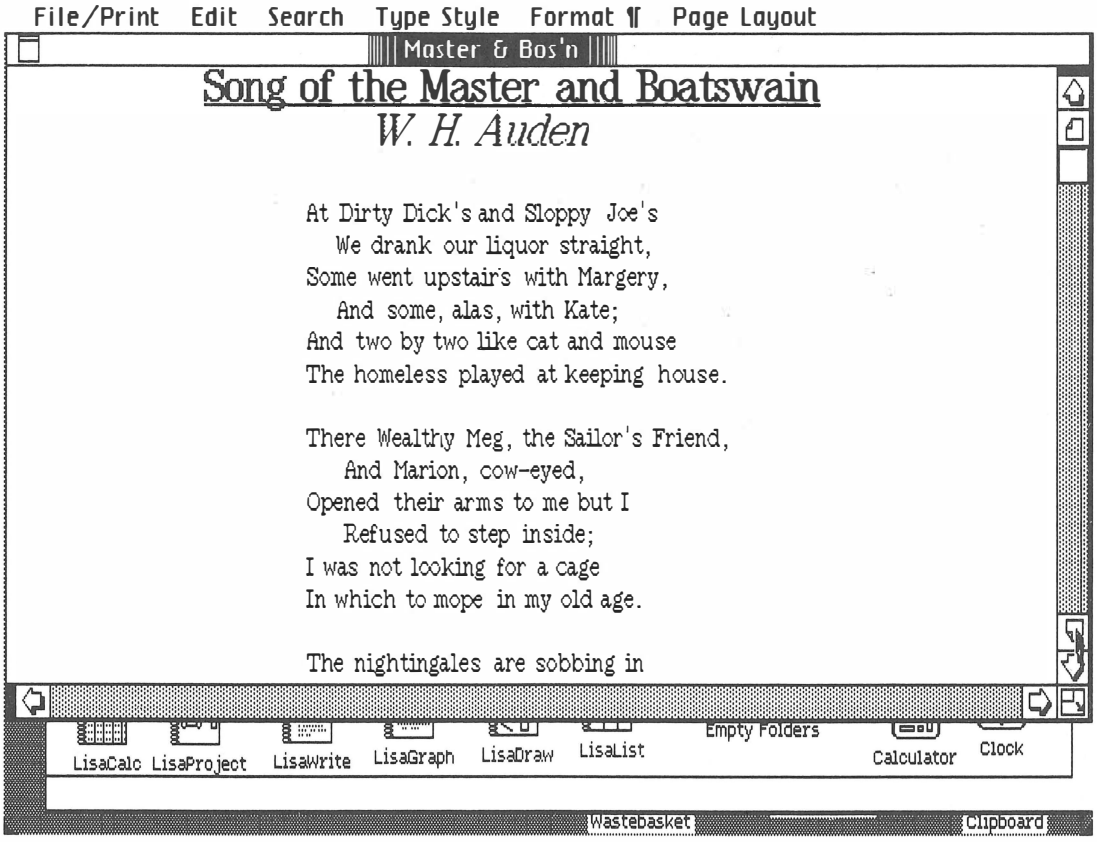
Figure 2–27



At each end of each scroll bar there's a **scroll arrow** (four of them in all). When you place the pointer on one of them and hit the button, the document scrolls in the direction indicated. If you hold the button down, the document will scroll slowly and continuously. (The way scroll arrows work is so obvious and intuitive that I won't belabor you with illustrations of it.)

Just below the up scroll arrow (at the top of the vertical scroll bar) is a little symbol that looks like a sheet of paper with the corner turned over; there's a similar symbol just above the down scroll arrow. These are the **view buttons** and they scroll text a screenful at a time. To activate a view button, you just put the

Figure 2–28

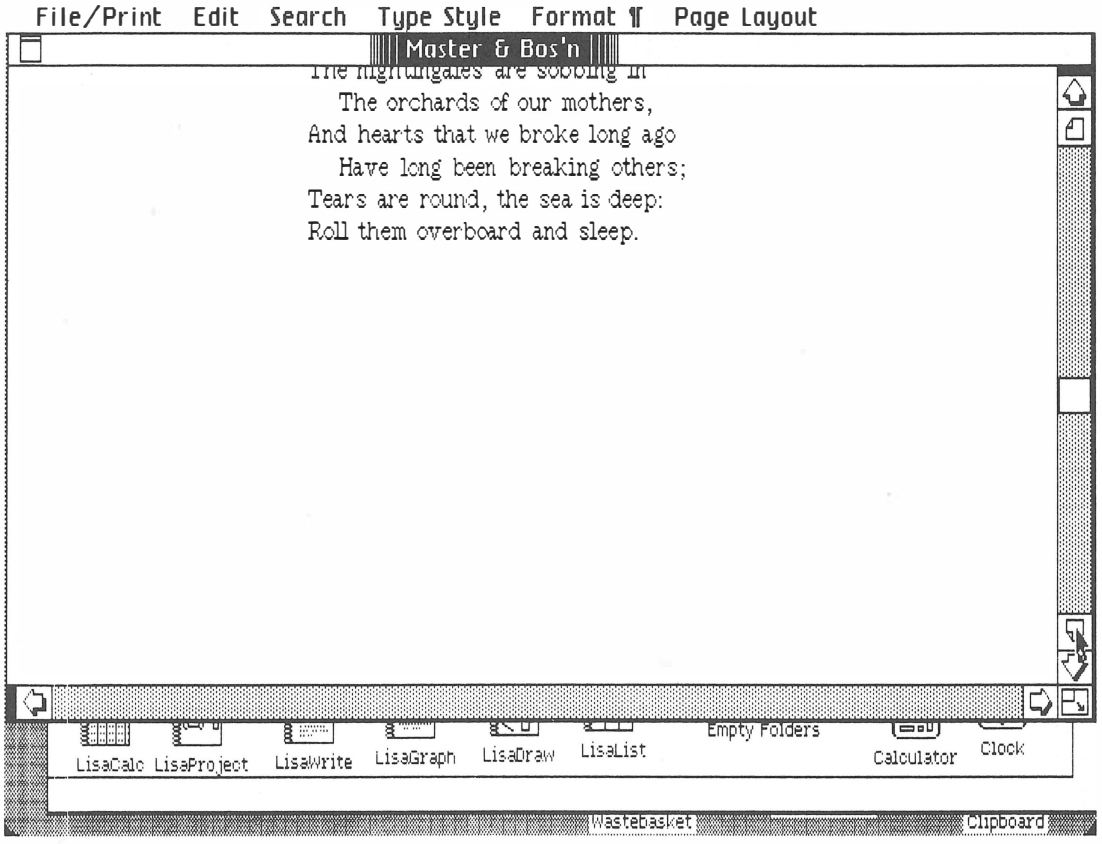


pointer in it and click the button. In Figure 2–28, I've moved to the beginning of the document and put the pointer in the down view button; clicking the button produces Figure 2–29 (notice how the elevator shifted to indicate the new place in the document).

The last line in Figure 2–28 is, "The nightingales are sobbing in." In Figure 2–29, half of this line is at the top of the new window, to give you a little continuity. Aside from that slight overlap, you get a whole new screenful.

LisaWrite only has vertical view buttons, but the other tools (and the Desktop Manager) have horizontal ones as well. They work the same basic way, leaving

Figure 2–29



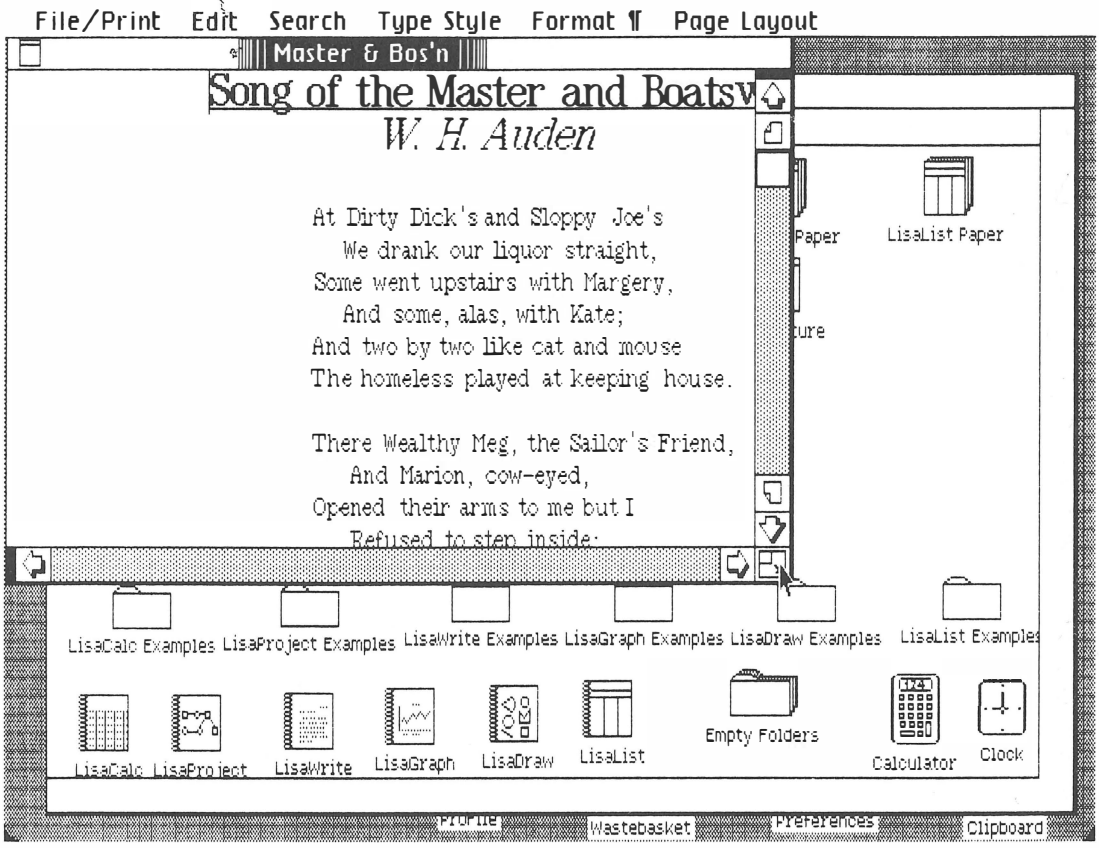
a little bit of the old screenful on the edge for reference, otherwise giving you a whole new screenful to either the left or the right.

You can only scroll in the active window, and thus it's the only one that has scroll bars. (This is yet another way to tell which window is active.)

Rearranging windows on the Desktop

Your keen eyes have noticed that there's one more symbol I haven't discussed. It sits at the juncture of the two scroll bars and is called the **size control box**. It's used to change the size and/or shape of a window (called **sizing** in either case). The way the size control

Figure 2–30



box works is simplicity itself; you just grab it with the pointer and move it wherever you want the corner of the new window to be.

Figure 2–30 illustrates one possible new size in the same basic shape, and Figure 2–31 shows how you can change the shape of the window by simply moving the size control box off the diagonal.

Figure 2–31

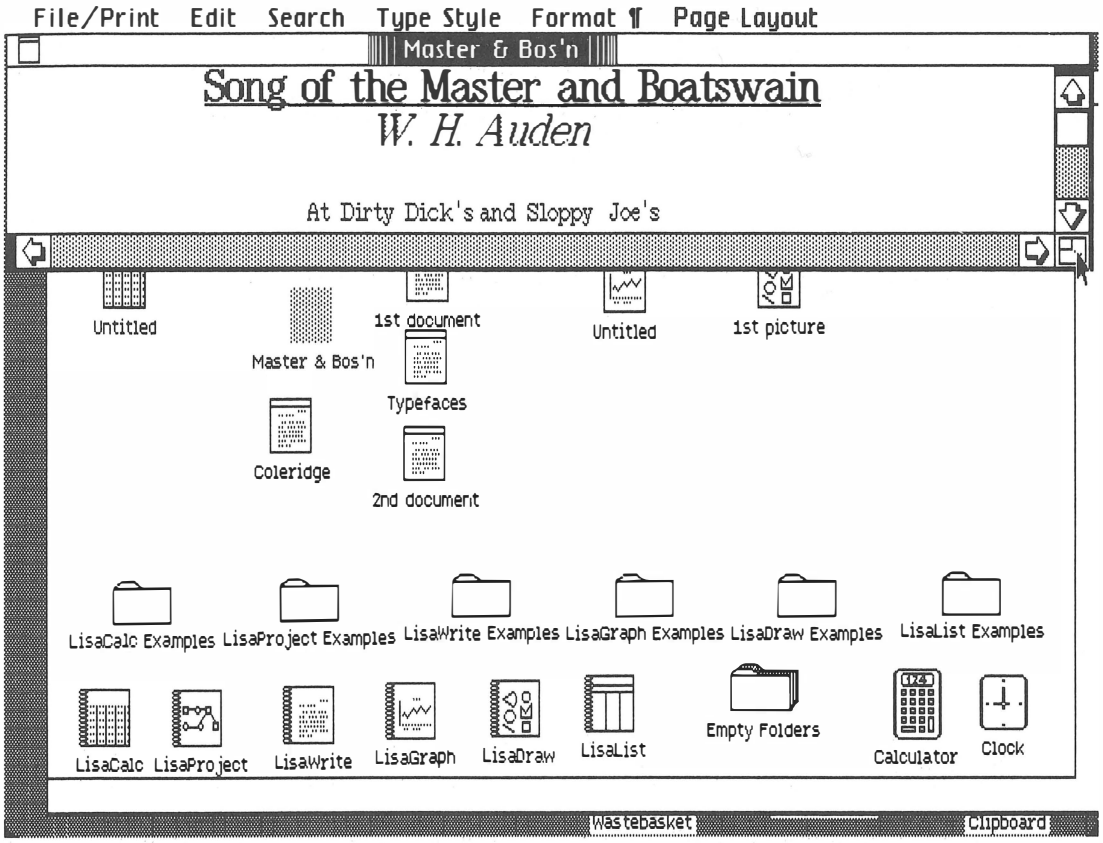

File/Print Edit Search Type Style Format ¶ Page Layout
Master & Bos'n
Song of the Master and Boatswain
W. H. Auden
At Dirty Dick's and Sloppy Joe's
Untitled
Master & Bos'n
1st document
Typefaces
Coleridge
2nd document
Untitled
1st picture
LisaCalc Examples
LisaProject Examples
LisaWrite Examples
LisaGraph Examples
LisaDraw Examples
LisaList Examples
LisaCalc
LisaProject
LisaWrite
LisaGraph
LisaDraw
LisaList
Empty Folders
Calculator
Clock
Wastebasket
Clipboard

Figure 2–32

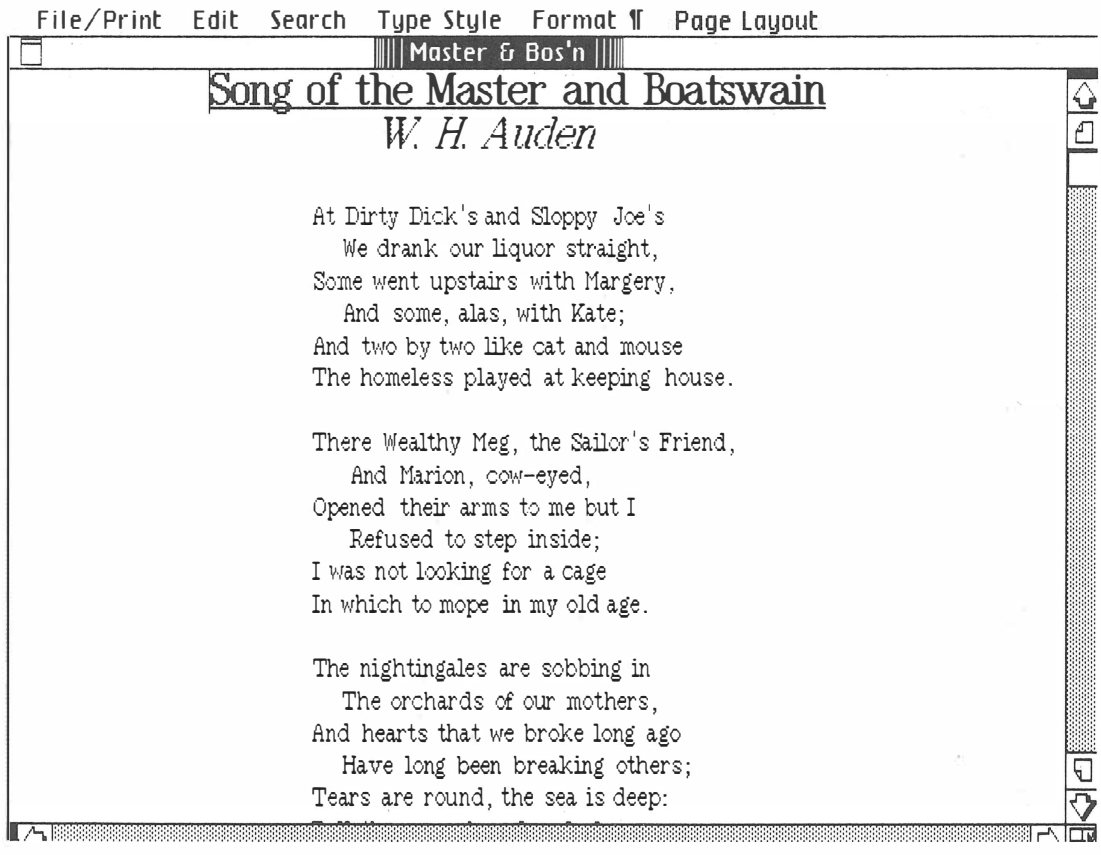
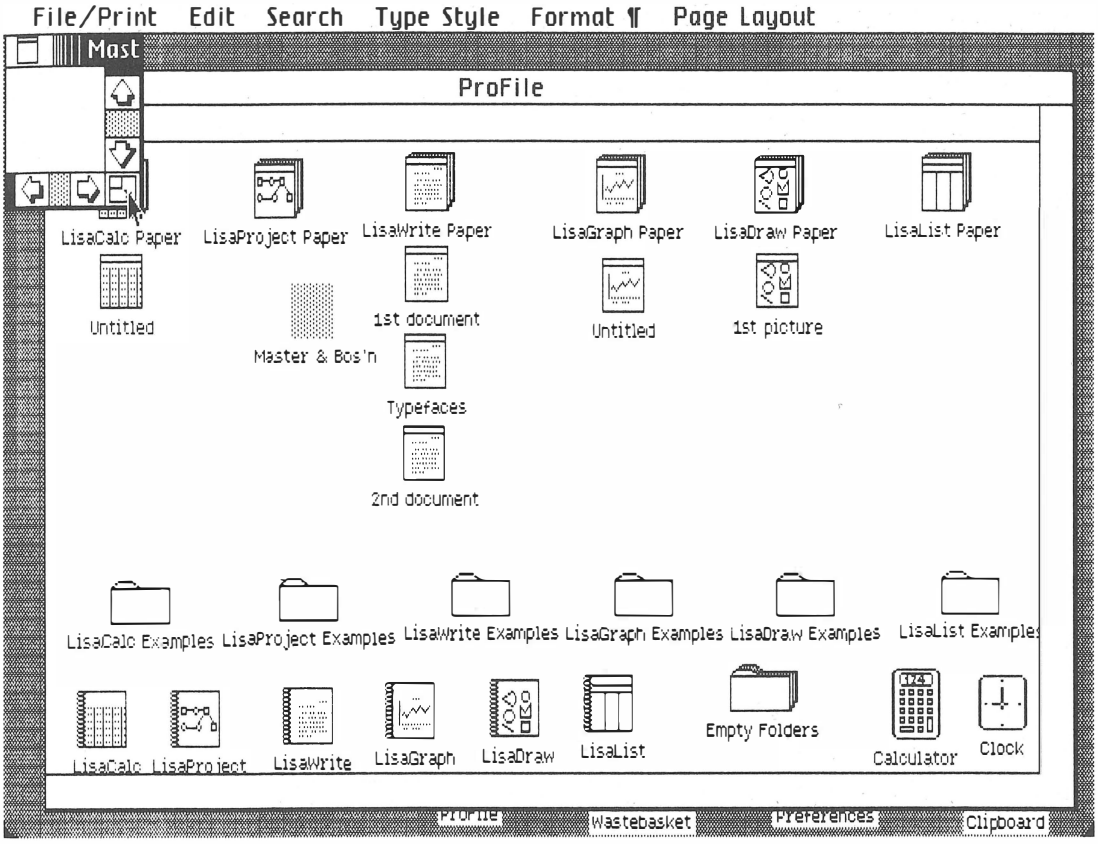

File/Print Edit Search Type Style Format ¶ Page Layout
Master & Bos'n
Song of the Master and Boatswain
W. H. Auden
At Dirty Dick's and Sloppy Joe's
We drank our liquor straight,
Some went upstairs with Margery,
And some, alas, with Kate;
And two by two like cat and mouse
The homeless played at keeping house.
There Wealthy Meg, the Sailor's Friend,
And Marion, cow-eyed,
Opened their arms to me but I
Refused to step inside;
I was not looking for a cage
In which to mope in my old age.
The nightingales are sobbing in
The orchards of our mothers,
And hearts that we broke long ago
Have long been breaking others;
Tears are round, the sea is deep:

Figure 2–33

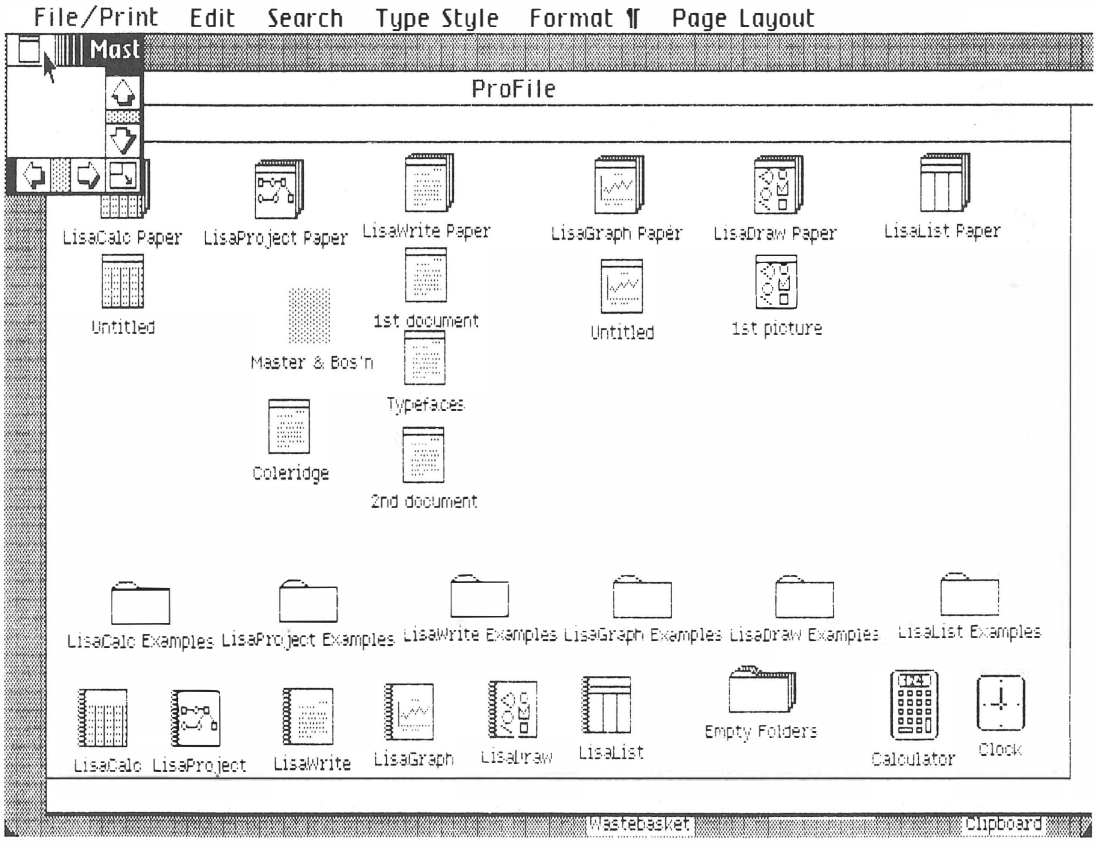


You can make a window as big or small as you want. In Figure 2–32, it fills the screen and completely blocks out the ProFile window (and Desktop) beneath it; in Figure 2–33, it retreats into a corner, revealing almost all of the ProFile window.

There are a couple of things to notice about Figure 2–33:

- The Lisa moves the title of the resized window over so that as much of it as possible is still visible. If the title had been left in its original position, none of it would be visible in Figure 2–33. You can see some of this title-shifting in Figure 2–30 as well.

Figure 2–34



- Although ProFile takes up most of the screen, it's not the active window. There are three ways you can tell—its title isn't highlighted, it doesn't have scroll bars, and it isn't on top.

A window can be moved as well as sized. You just grab it anywhere on its **title bar** (the title plus the white space on either side of it) and put it where you want it. Figure 2–34 shows Master & Bos'n being grabbed and Figure 2–35 shows it in a new position, just before the mouse button is released (notice the white shadow in the original location); Figure 2–38 shows how it looks after the mouse button is released.

Figure 2–35

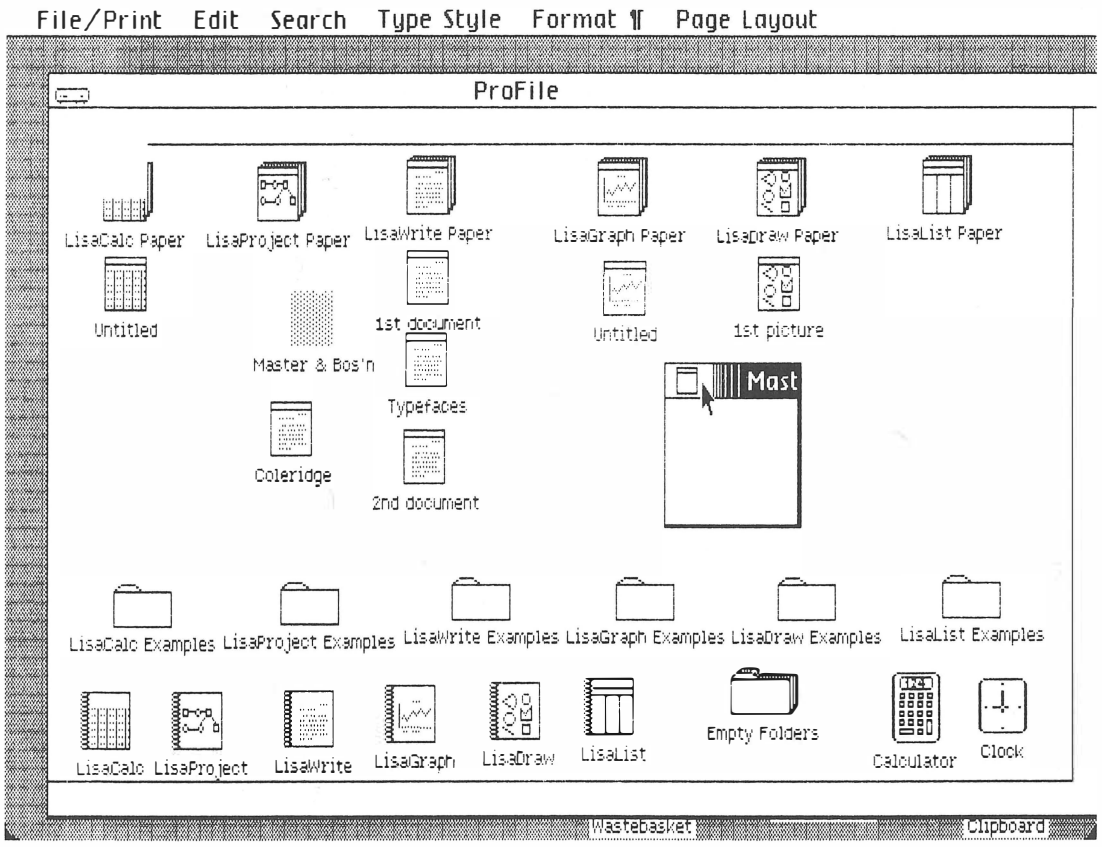
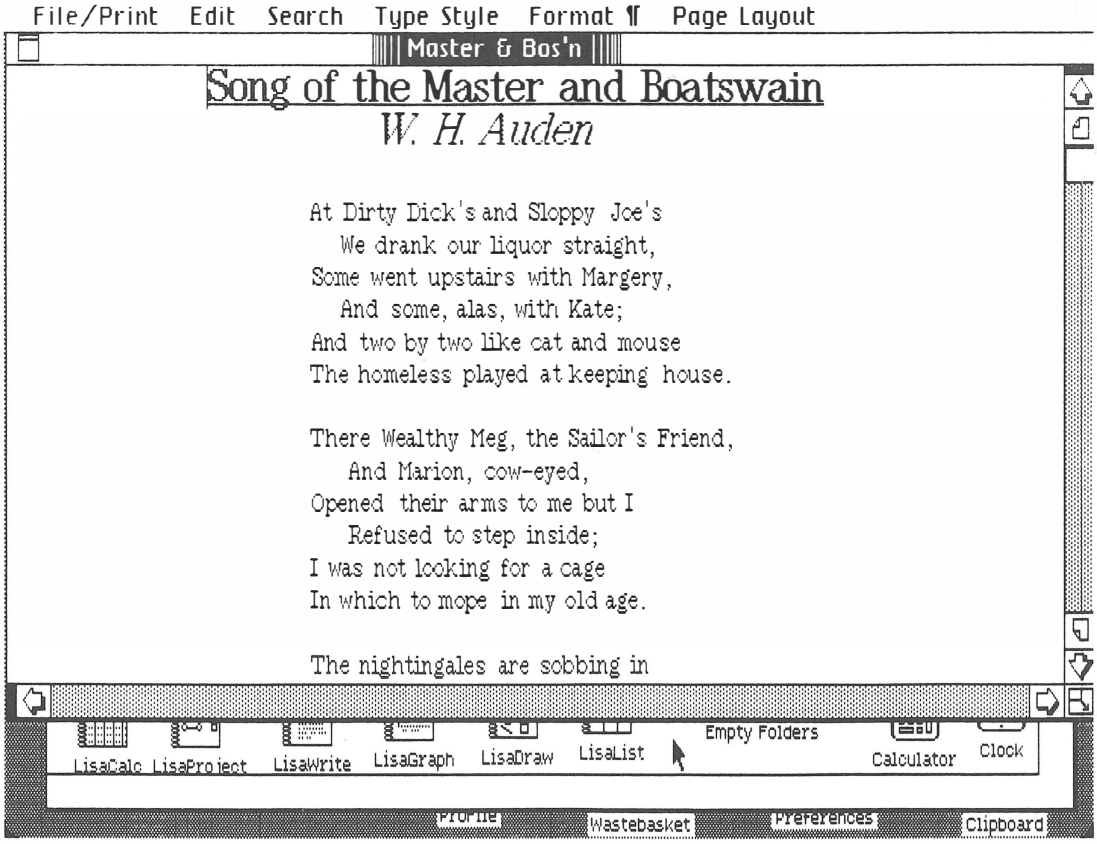

File/Print Edit Search Type Style Format ¶ Page Layout
ProFile
LisaCalc Paper
LisaProject Paper
LisaWrite Paper
LisaGraph Paper
LisaDraw Paper
LisaList Paper
Untitled
1st document
Untitled
1st picture
Master & Bos'n
Typefaces
Mast
Coleridge
2nd document
LisaCalc Examples
LisaProject Examples
LisaWrite Examples
LisaGraph Examples
LisaDraw Examples
LisaList Examples
LisaCalc
LisaProject
LisaWrite
LisaGraph
LisaDraw
LisaList
Empty Folders
Calculator
Clock
WasteBasket
Clipboard

Figure 2–36



If you want to look at a window that's buried underneath the active window, you can shrink the active window and move it around, as I've done with Master & Bos'n. But there's a better method—you just activate the window you want to bring to the top.

The easiest way to activate a window is simply to put the pointer anywhere in it and click the button. Figure 2–36 shows the pointer in the ProFile window, which is mostly buried underneath Master & Bos'n; Figure 2–37 shows the result of clicking the button when the pointer is in that position. Notice that Master & Bos'n is still visible (across the top and along the left edge of the screen).

Figure 2–37

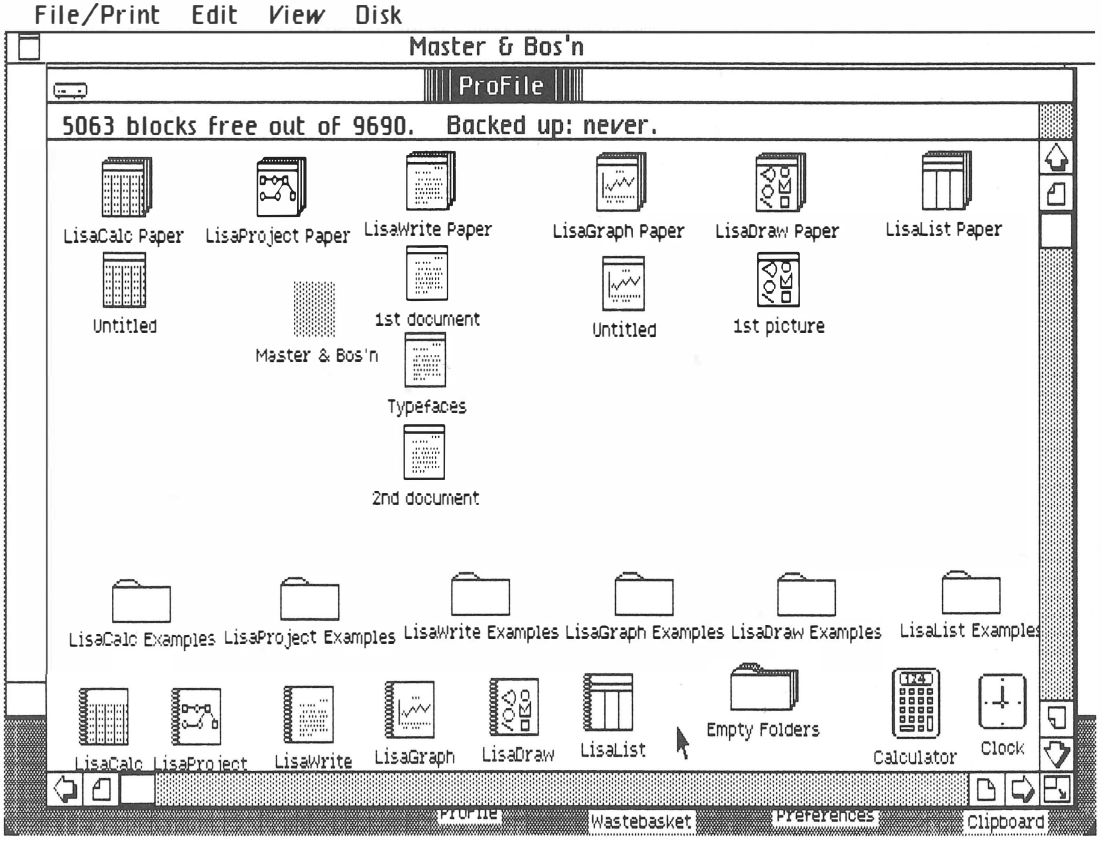

File/Print Edit View Disk
Master & Bos'n
ProFile
5063 blocks free out of 9690. Backed up: never.
LisaCalc Paper
LisaProject Paper
LisaWrite Paper
LisaGraph Paper
LisaDraw Paper
LisaList Paper
Untitled
Master & Bos'n
1st document
Typefaces
2nd document
Untitled
1st picture
LisaCalc Examples
LisaProject Examples
LisaWrite Examples
LisaGraph Examples
LisaDraw Examples
LisaList Examples
LisaCalc
LisaProject
LisaWrite
LisaGraph
LisaDraw
LisaList
Empty Folders
Calculator
Clock
ProFile
Wastebasket
Preferences
Clipboard

Figure 2–38

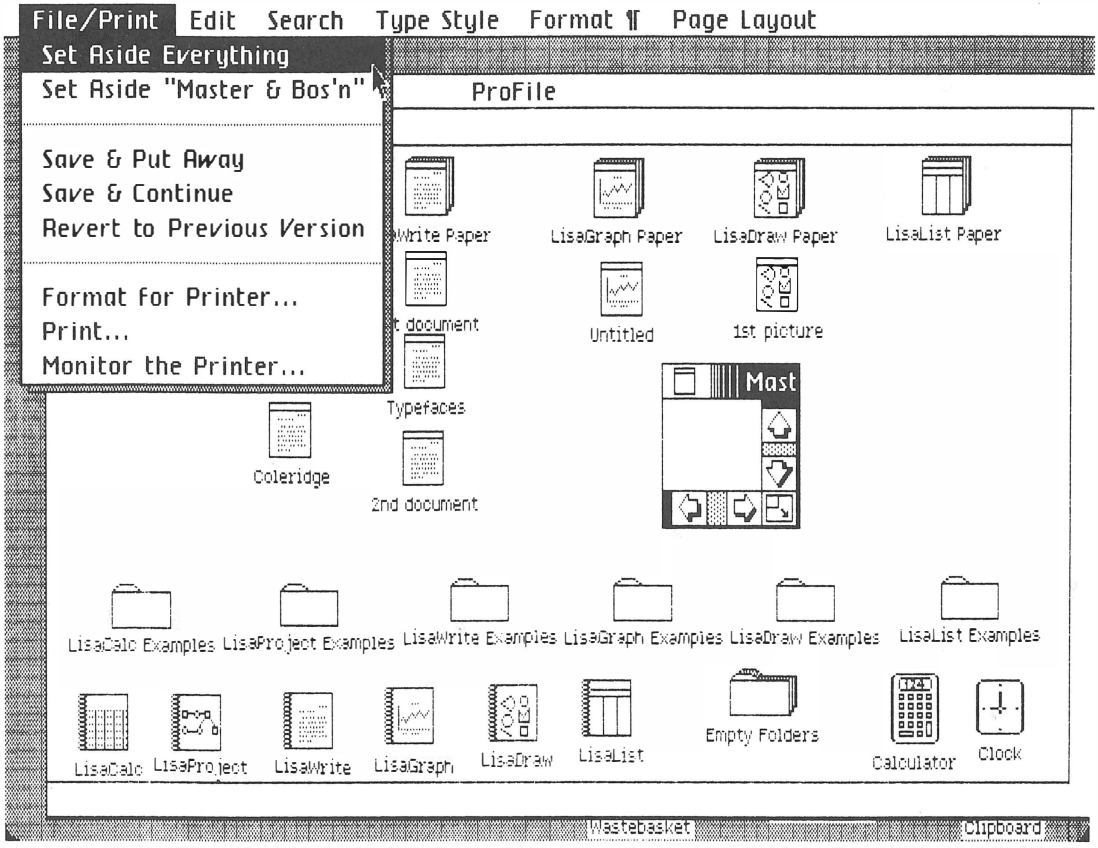
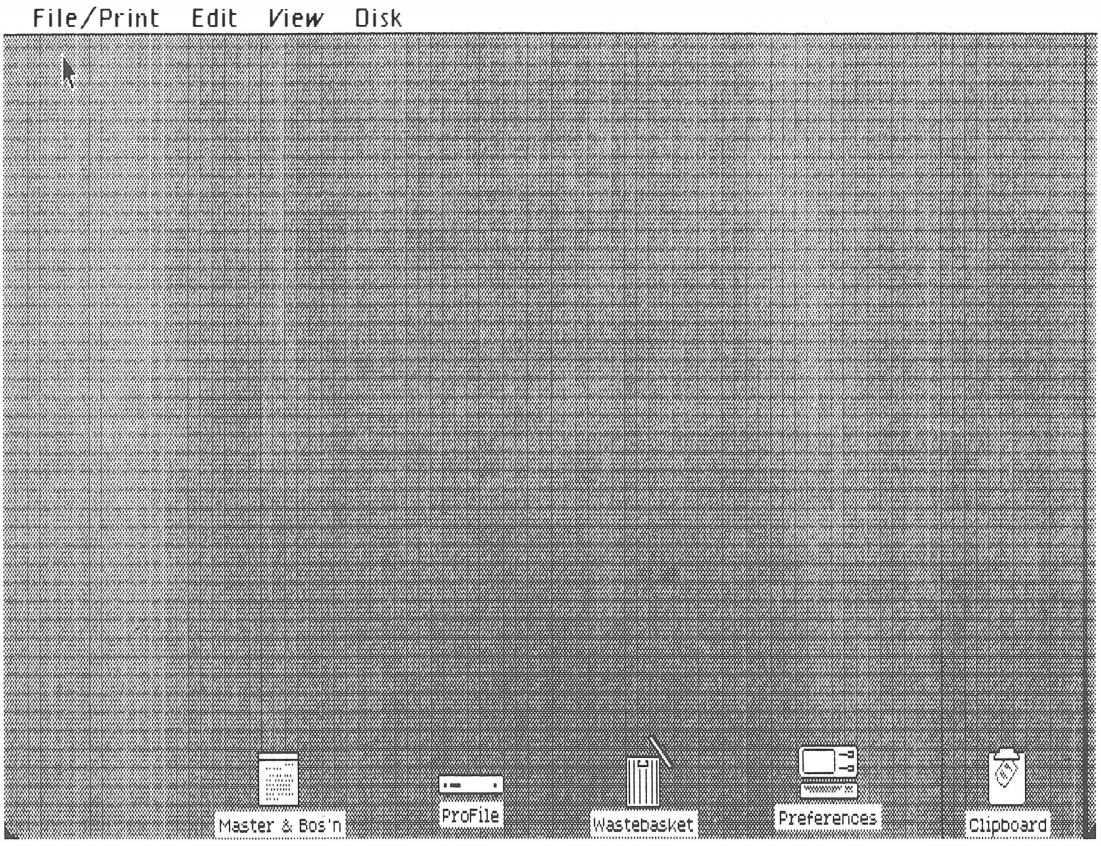

File/Print
Edit
Search
Type Style
Format ¶
Page Layout
Set Aside Everything
Set Aside "Master & Bos'n"
Save & Put Away
Save & Continue
Revert to Previous Version
Format for Printer...
Print...
Monitor the Printer...
ProFile
Write Paper
LisaGraph Paper
LisaDraw Paper
LisaList Paper
t document
Untitled
1st picture
Typefaces
Mast
Coleridge
2nd document
LisaCalc Examples
LisaProject Examples
LisaWrite Examples
LisaGraph Examples
LisaDraw Examples
LisaList Examples
LisaCalc
LisaProject
LisaWrite
LisaGraph
LisaDraw
LisaList
Empty Folders
Calculator
Clock
Wastebasket
Clipboard

Figure 2–39



Sometimes, however, the window you want to look at is completely buried (this is quite possible, since the Lisa lets you have *20*! windows on the Desktop at one time). You can't click the mouse button in it, because there's no visible part of it to put the pointer in. You could resize one window after another till you uncover the one you want, but there's a faster way to do it: you simply go to the File/Print menu and select **Set Aside Everything** (Figure 2–38). All the windows become icons again (Figure 2–39), which makes it easy to find the one you want, select it and open it.

Notice that, in Figure 2–39, Master & Bos'n has its own icon on the Desktop. This is convenient, because

otherwise you wouldn't be able to select it (if it were the buried window you were looking for). You'd have to select ProFile and open it, then select Master & Bos'n and open it.

On the other hand, if you wanted to put away Master & Bos'n back inside of ProFile, you could have done that simply by selecting **Save & Put Away** instead of Set Aside from the File/Print menu. A third option is **Save & Continue.** The chart below explains the differences between them:

	Set Aside	**Save & Put Away**	**Save & Continue**
Reduces window to icon?	yes	yes	no
Places icon:	on Desktop	back where it came from	—
Records changes on disk?	no	yes	yes

Saving takes significantly more time than setting aside, because the ProFile has to be accessed. The advantage, of course, is that you won't lose your changes if there's a power failure, or if the plug accidentally gets pulled out of the wall.

Figure 2–40

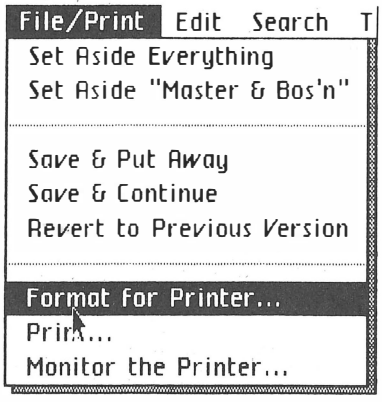
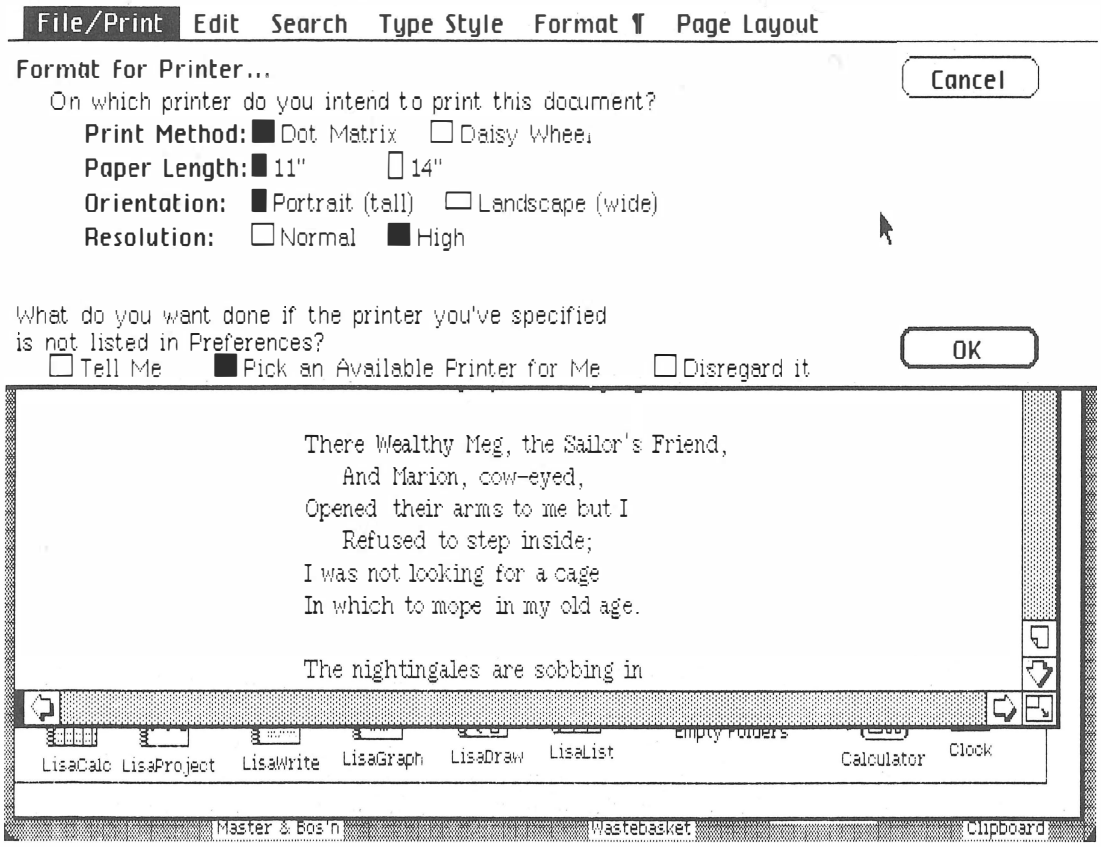


Figure 2–41



Printing out

When you're ready to print a document, you go to the File/Print menu and select **Format for Printer . . .** (Figure 2–40). This gives you the **dialog box** shown in Figure 2–41. A dialog box is simply a display, similar to the ones in the Preferences window, that lets you change variables of one kind or another. (By the way, I think the dialog box in Figure 2–41 is an excellent example of how clear and understandable the Lisa's messages are.)

One of the things it asks you (if you're using a dot-matrix printer) is whether you want a **high-resolution** or a **normal** printout; I discussed the difference between

them and gave you samples of each in Chapter 1. Another thing it asks you is if you want the printout to run down the page in a **vertical format** (called "portrait" or "tall" by Apple—why use the obvious term?) or across the page in a **horizontal format** (which Apple calls "landscape" or "wide").

Vertical, of course, is what's normal; that's the way paper normally passes through a typewriter. But horizontal format gives each line more room and makes the text easier to read. And, of course, many graphic presentations look better in horizontal format. (When you print the screen, it always comes out in horizontal format, and you don't see any of these dialog boxes.)

Anyway . . . if all these defaults are fine with you, you click on OK. The printing format you define for a document remains with it until you change it. If you know that a document's format is fine with you (either because you've previously set it up the way you want it or because you want the defaults), you can skip this Format for Printer step and go directly to the next one—selecting **Print . . .** from the File/Print menu (Figure 2–42).

This produces another dialog box, shown in Figure 2–43. (By the way, three dots after a menu item always indicates that it produces a dialog box.) Here's where you get to choose between **draft mode** (also discussed and illustrated in Chapter 1) and "finished quality" (either high-resolution or normal, depending on what you selected in the Format for Printer dialog box).

You get this choice only if you select vertical format, because draft mode only works in vertical format. If you pick horizontal format in the Format for Printer dialog box, the draft mode/finished quality option is simply eliminated from this dialog box.

The While You Work choice lets you do **background printing** (working on one document while printing another). The rest of the options are self-explanatory. When you click on OK, the Lisa gives you the display you see in Figure 2–44 and begins printing (unless you click on Terminate). If you want to do other

Figure 2–42

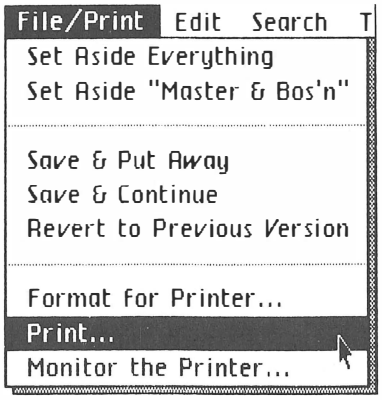


Figure 2–43

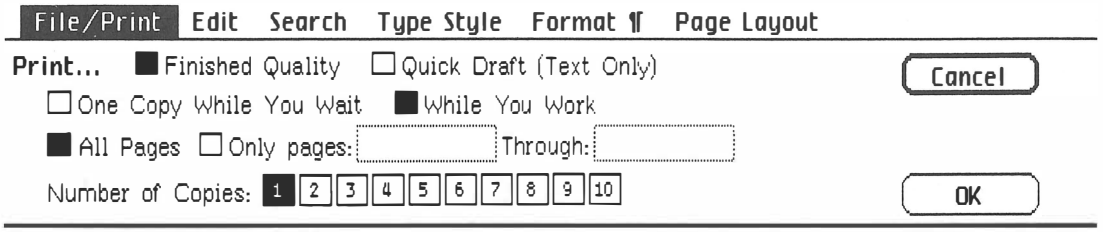


Figure 2–44

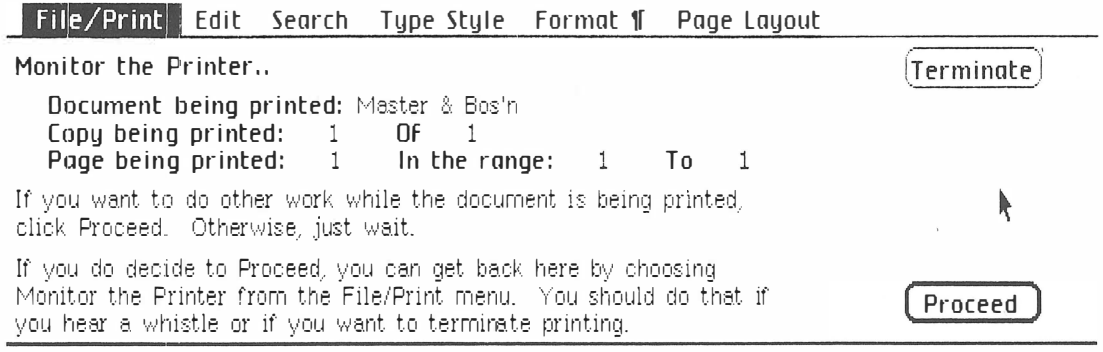
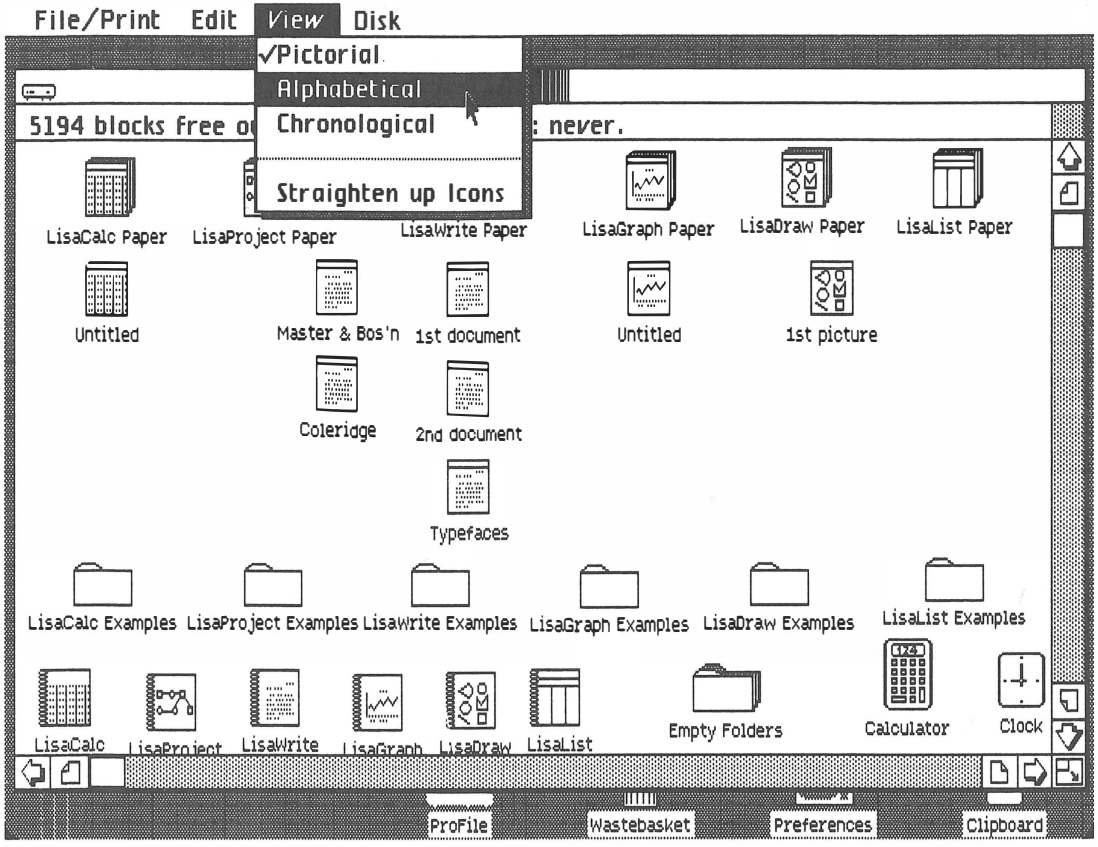


Figure 2–45



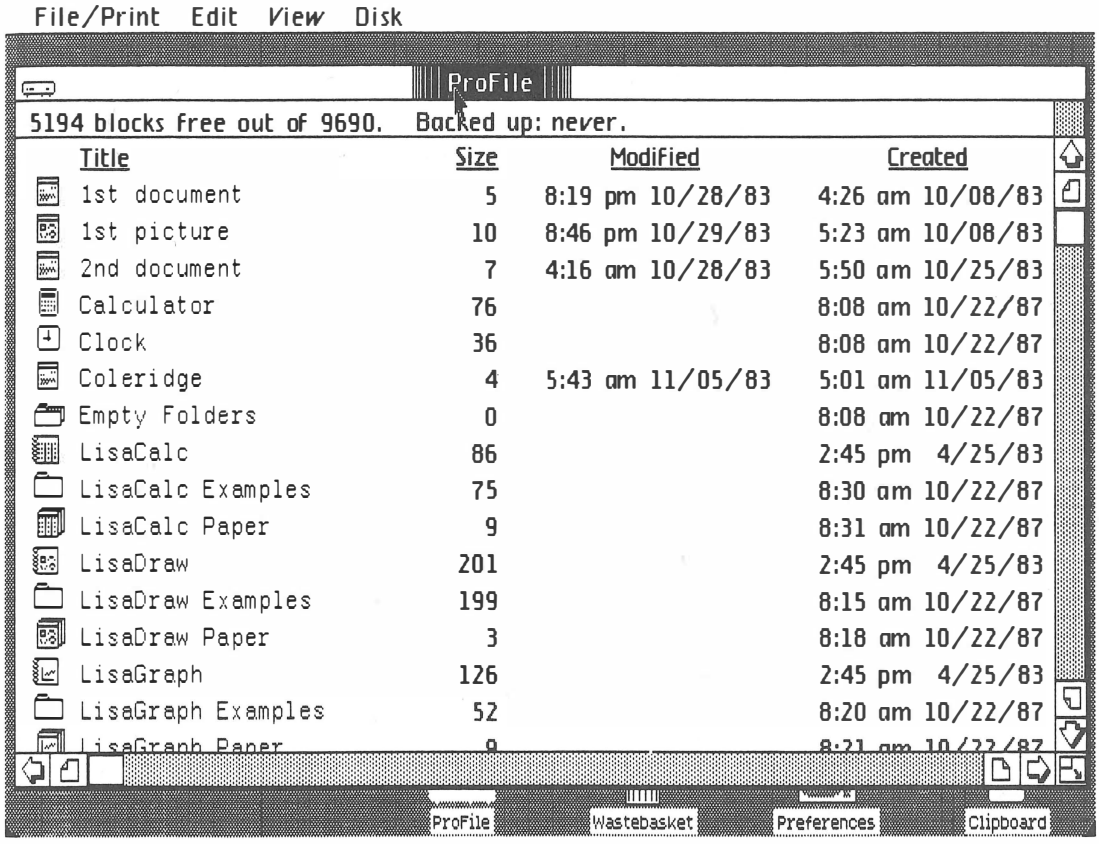
work while the printout is going on (in other words, if you want to put the printing in the background), you click on Proceed. Otherwise, you just sit back and let the Lisa do its stuff.

Odds and ends

There are other pointer shapes and scrolling controls than those already mentioned. They're specific to particular tools and I'll describe them as they come up in later chapters.

So far the only menu we've used is the File/Print menu. But some of the other menus do interesting things too. For example, the **View menu** (Figure 2–45) controls

Figure 2–46



how objects are represented in a window. The default is to display them **pictorially**—as icons—which is the way we've been seeing them up till now. But you can have them listed alphabetically as well (Figure 2–46).

The alphabetical listing also gives you the size of each document (in 512-byte blocks), the date and time it was created, and the date and time it was last modified. The Modified and Created columns provide some interesting insights. One is that I tend to work all night long. Another is that I have managed to create several documents on October 22, 1987, a major accomplishment in time travel that you'll have to buy my forthcoming science-fiction novel to find out more about.

Figure 2–47

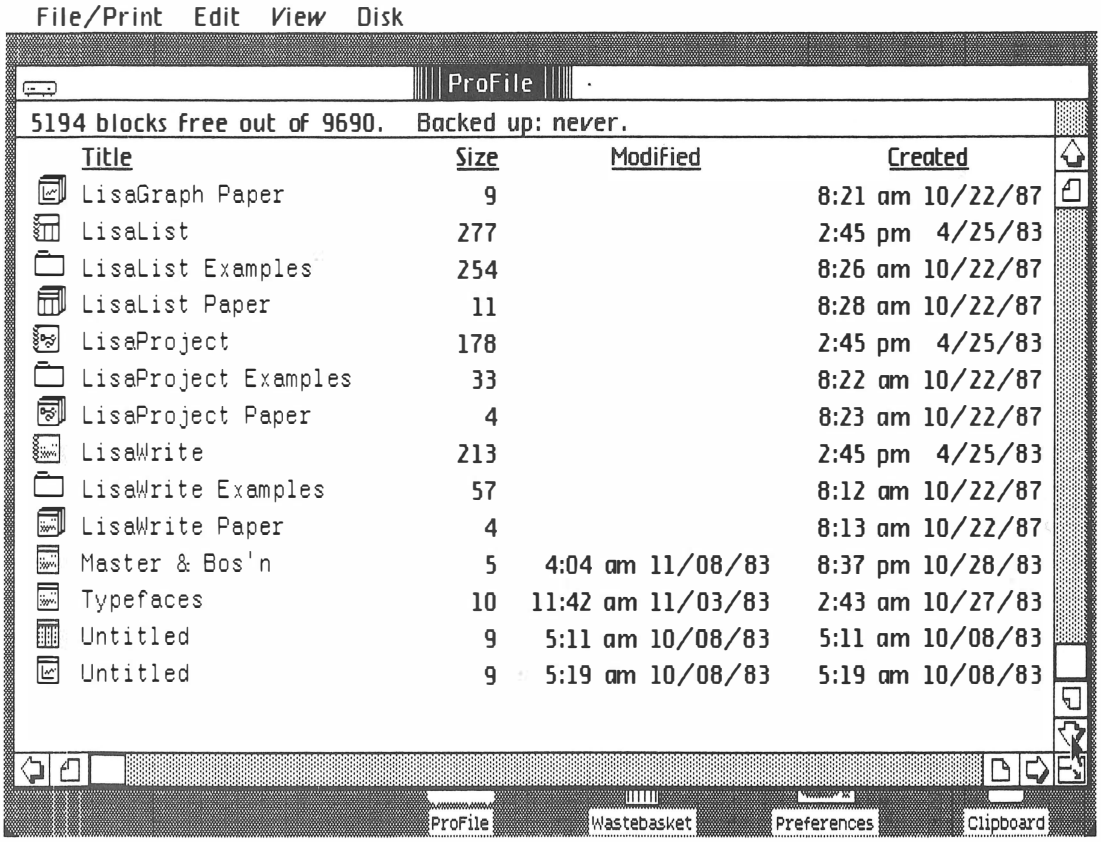
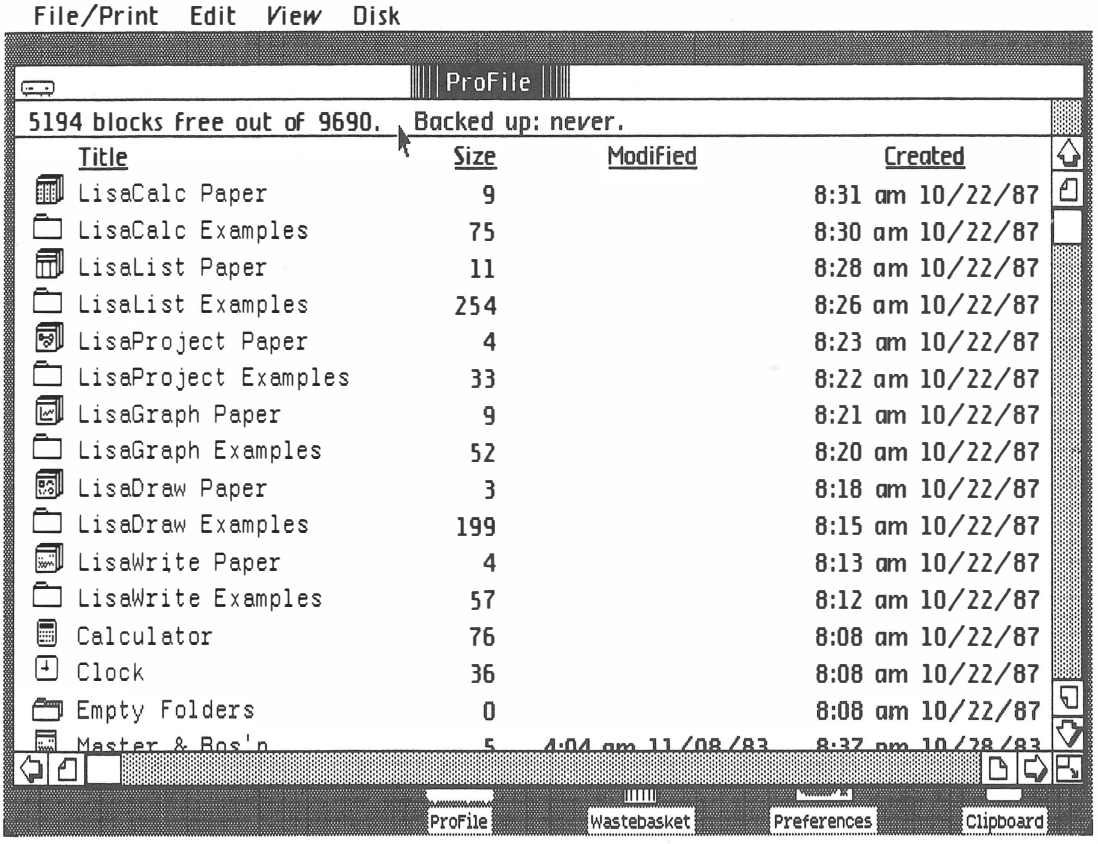

File/Print Edit View Disk
ProFile
5194 blocks free out of 9690. Backed up: never.
Title Size Modified Created
LisaGraph Paper 9 8:21 am 10/22/87
LisaList 277 2:45 pm 4/25/83
LisaList Examples 254 8:26 am 10/22/87
LisaList Paper 11 8:28 am 10/22/87
LisaProject 178 2:45 pm 4/25/83
LisaProject Examples 33 8:22 am 10/22/87
LisaProject Paper 4 8:23 am 10/22/87
LisaWrite 213 2:45 pm 4/25/83
LisaWrite Examples 57 8:12 am 10/22/87
LisaWrite Paper 4 8:13 am 10/22/87
Master & Bos'n 5 4:04 am 11/08/83 8:37 pm 10/28/83
Typefaces 10 11:42 am 11/03/83 2:43 am 10/27/83
Untitled 9 5:11 am 10/08/83 5:11 am 10/08/83
Untitled 9 5:19 am 10/08/83 5:19 am 10/08/83
ProFile
Wastebasket
Preferences
Clipboard

Figure 2–48

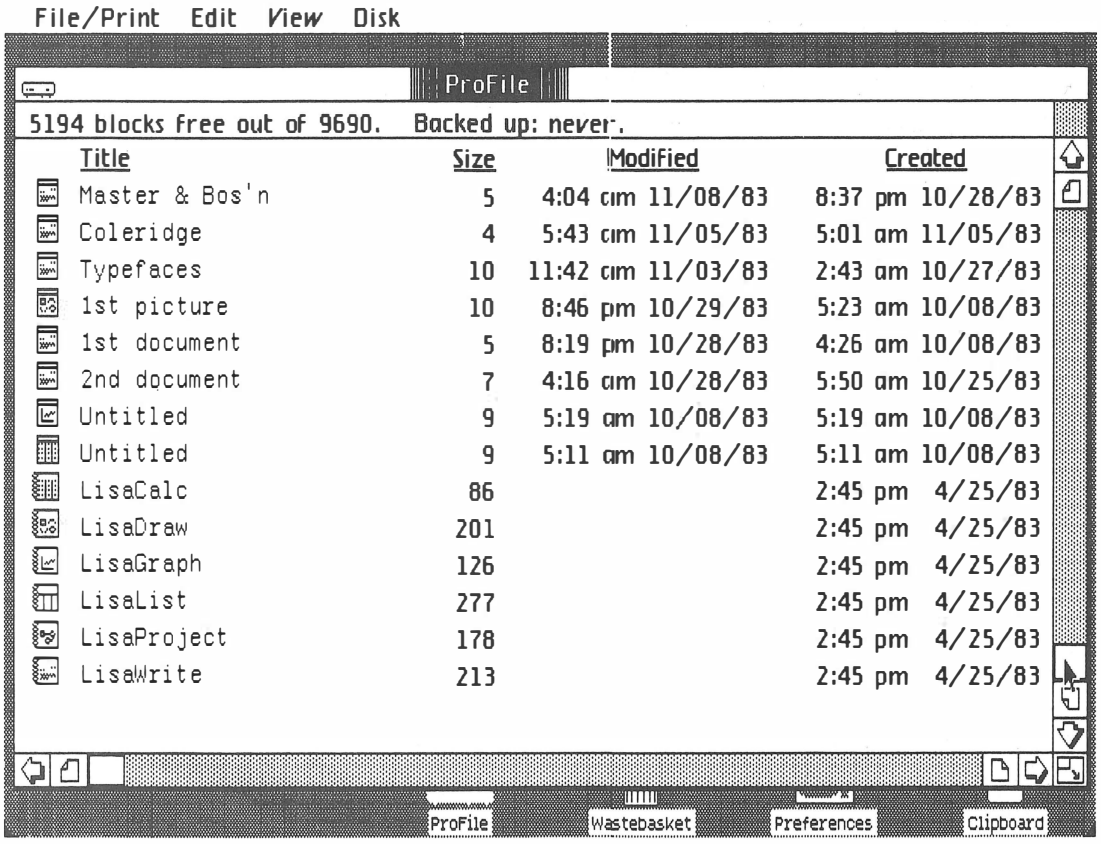


This date, time and size information takes up more room than the icons, so all the documents won't fit on one screen. To see the others, you merely scroll down—as I've done, using the scroll arrow, in Figure 2–47.

It's also possible to display the objects chronologically, from the most recent to the oldest. Naturally the list in Figure 2–48 starts with LisaCalc Paper, which I created at 8:31 A.M. on October 22, 1987, just a few hours before the Altairian police ships assigned to patrol this sector of the galaxy arrived on earth and ordered the United Nations to—ah, but I'm giving away the plot.

You may be wondering why ProFile thinks that I (rather than Apple) created the tools, stationery pads

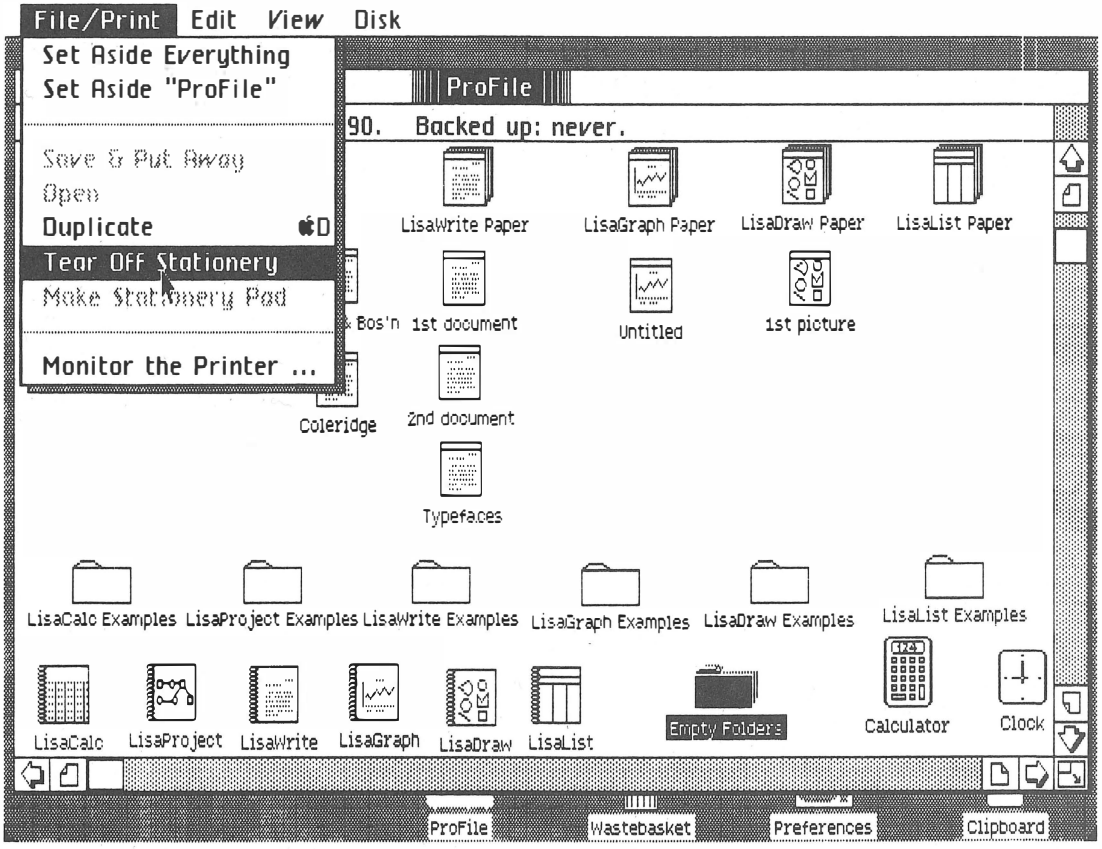
Figure 2–49



and folders of examples on this list, when in fact all I created were the eight documents (Master & Bos'n, Coleridge, etc.). Well, this has to do with ProFile's philosophical orientation. Basically, ProFile is a solipsist and thus believes that nothing exists except what it's aware of. So as far as it's concerned, all those objects were created out of nothing the instant I transferred them onto ProFile from the floppy disks Apple sent them to me on. (But how did I do it in *1987*?!—that's the question.)

Here again, the documents won't all fit on one screen; in Figure 2–49, I've scrolled down to the end (using the elevator this time, just for a little variety).

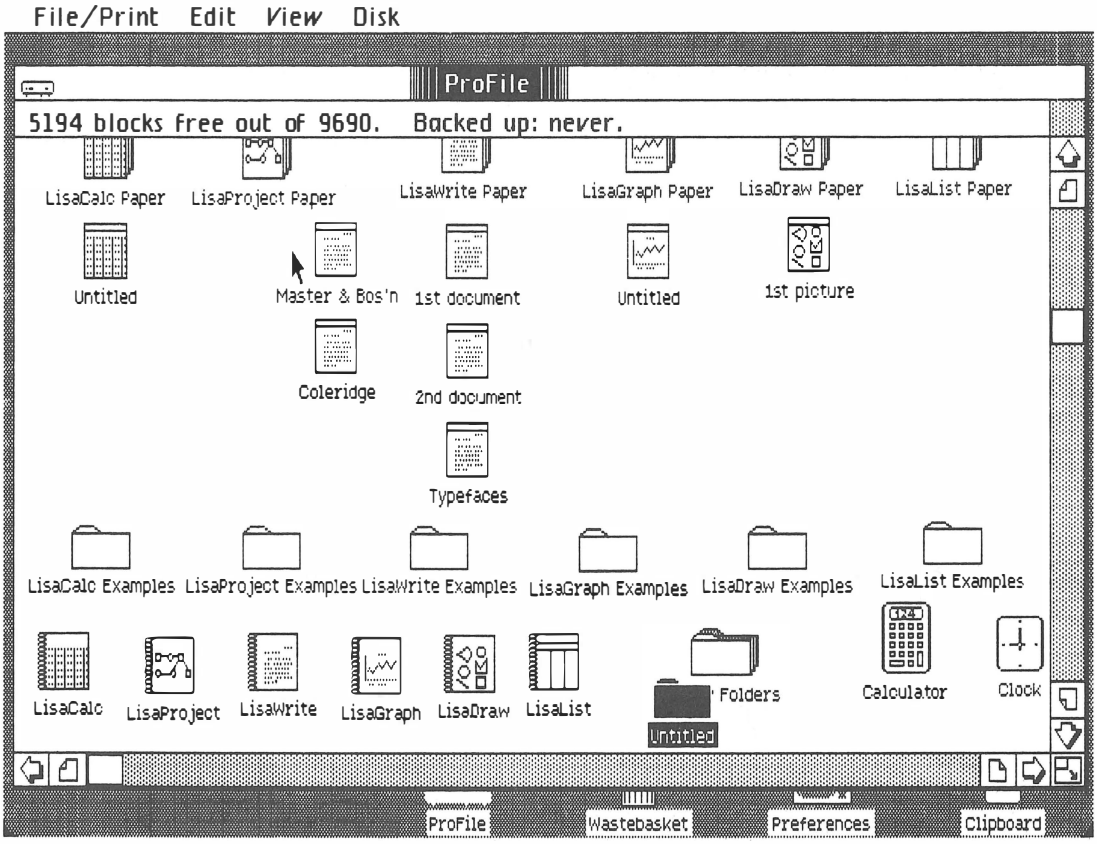
Figure 2–50



Notice that the order is determined by the last time the document was worked on, regardless of whether it was created then or merely modified.

It isn't just alphabetical and chronological listings that can overflow a single screen; sometimes even icons are too numerous to fit. In that case you can scroll to the other icons just as I've done above, or you can do something a little more sophisticated. You may remember that back when you first saw the ProFile window, I mentioned the **Empty Folders** icon but told you to ignore it for the moment. Well, that moment has passed and I am now prepared to explain this icon to you! I can well imagine your excitement.

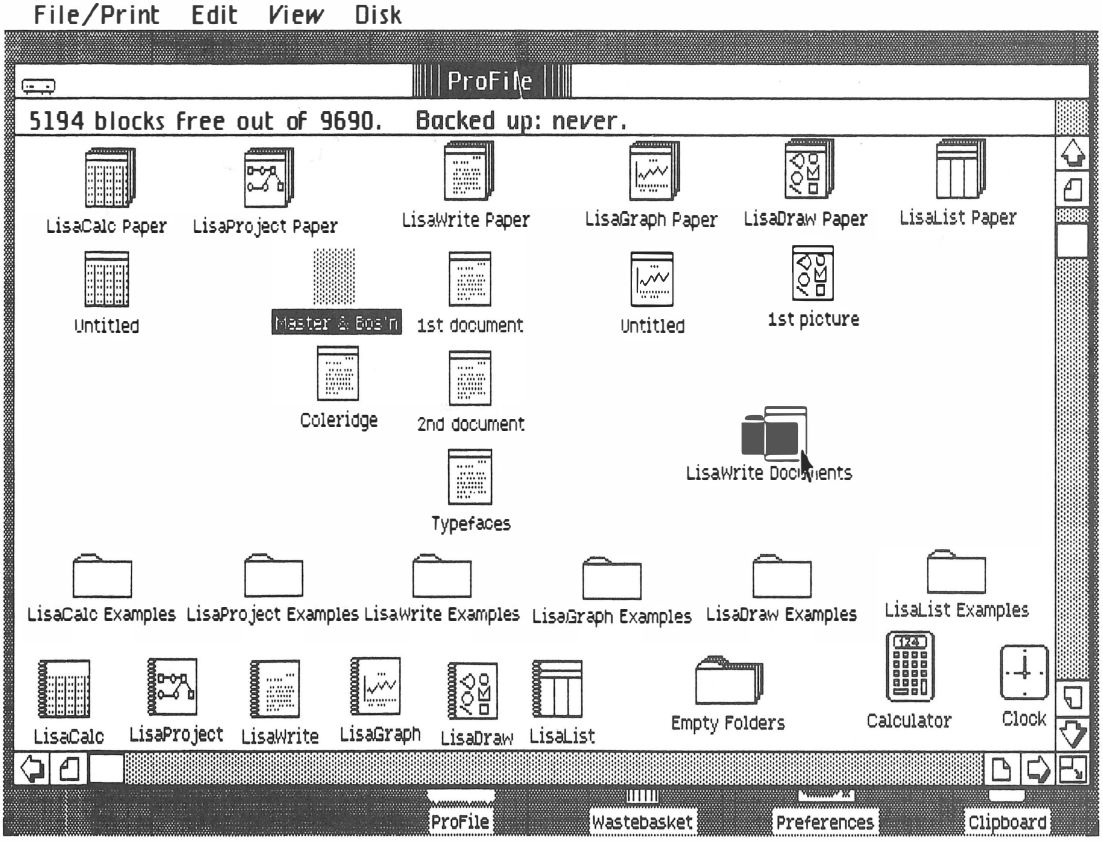
Figure 2–51



Actually, there's not much to explain. The Lisa's **folders** are used just as folders in the real world are—to hold several related objects. You can take a bunch of icons that are littering up the window and get them out of the way by stuffing them into a folder you've created for that purpose. What you call the folder and what you put in it are both entirely up to you. Here's how it works:

First you select the Empty Folders icon, then you go to the File/Print menu and Tear Off Stationery (Figure 2–50). This gives you an untitled new folder (Figure 2–51)—just as following the same procedure with a stationery pad gives you an untitled new document.

Figure 2–52



(Notice that the Lisa has automatically scrolled the icons up to make room for the new folder. You can scroll them back down whenever you want, as I did between Figures 2–51 and 2–52.)

Next you grab the new folder, move it somewhere convenient, and retitle it. Then you grab each object you want to go into the folder, move it over and place it on top of the folder. In Figure 2–52, I've done that with Master & Bos'n. When you release the mouse button, the document disappears from its old location and moves into the folder.

Figure 2–53

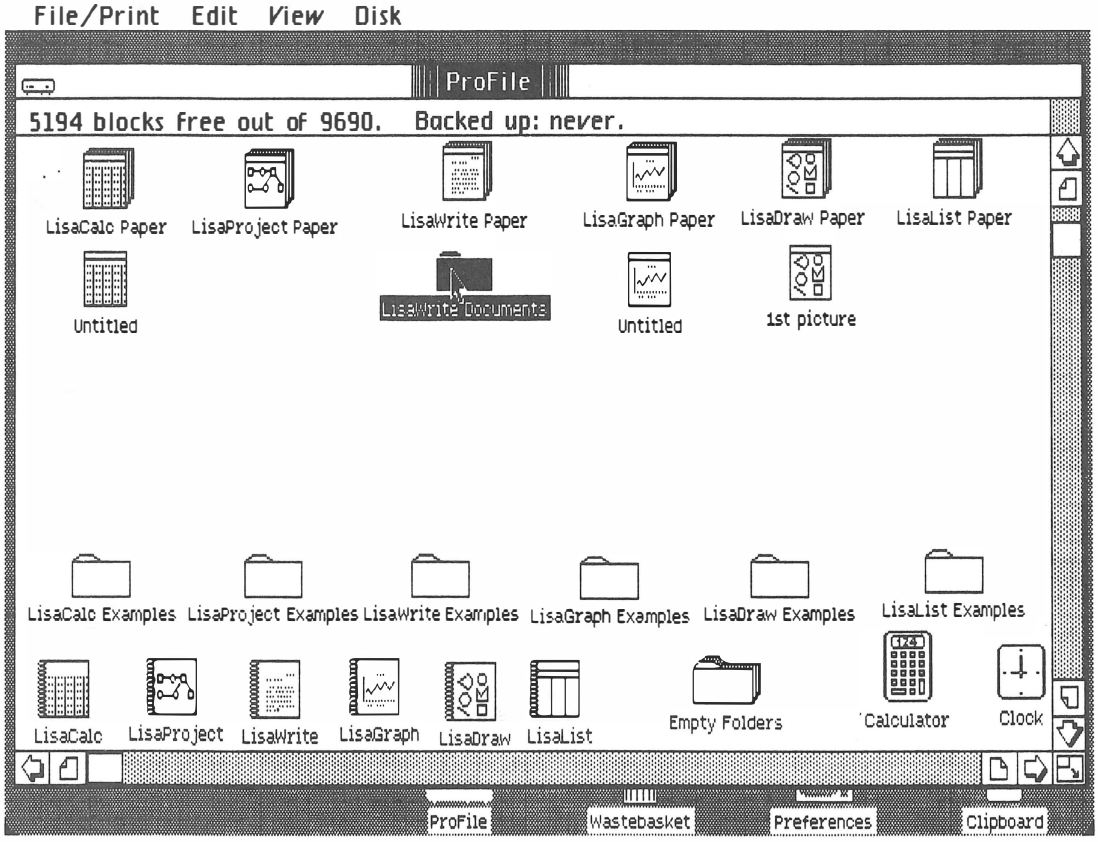
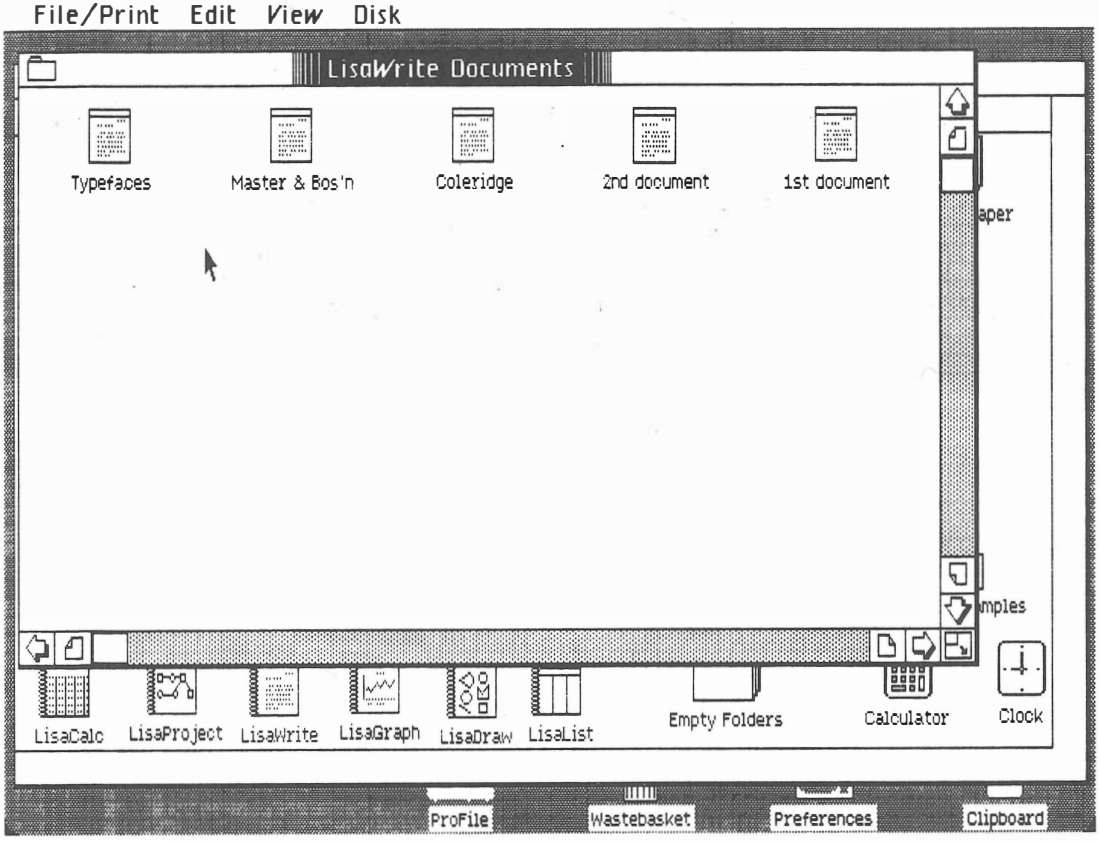

File/Print Edit View Disk
ProFile
5194 blocks free out of 9690. Backed up: never.
LisaCalc Paper
LisaProject Paper
LisaWrite Paper
LisaGraph Paper
LisaDraw Paper
LisaList Paper
Untitled
LisaWrite Documents
Untitled
1st picture
LisaCalc Examples
LisaProject Examples
LisaWrite Examples
LisaGraph Examples
LisaDraw Examples
LisaList Examples
LisaCalc
LisaProject
LisaWrite
LisaGraph
LisaDraw
LisaList
Empty Folders
Calculator
Clock
ProFile
Wastebasket
Preferences
Clipboard

Figure 2–54



In Figure 2–53, I've moved all five LisaWrite documents into the LisaWrite Documents folder and moved the folder underneath the LisaWrite Paper icon. See how much neater the window looks?

To get to any of those LisaWrite documents, all I have to do is open the folder (as I've done in Figure 2–54). If I decide I want to move a document back out of the folder, I just grab it, move it over to the ProFile window, and release the mouse button.

Folders are great for keeping windows well organized and they make it easier to find what you're looking for, especially when you're dealing with a lot of icons.

The **Edit menu** also does some nice things, most of which I'll cover in the LisaWrite chapter. But there's one very useful feature I really should discuss here. I'm talking, of course, about the original forgive-and-forget guy, that friend indeed in times of need, star of graphics, spreadsheets and word processing, and a close personal friend—the **Undo** command!

The Undo command is really simple. When you screw up, you just go to the Edit menu and select Undo Last Change (Figure 2–55). The Lisa then proceeds to put everything back the way it was before you did the last thing you did—unless for some reason it can't do that, in which case it displays Figure 2–56.

Figure 2–55

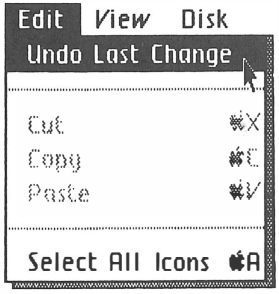
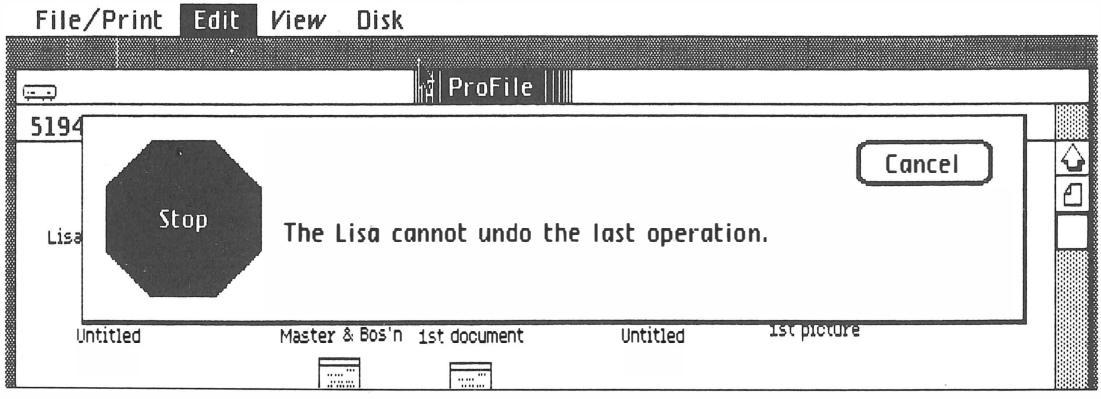


Figure 2–56



And so we bid fond adieu . . .

It must be obvious to you by now that I could go on describing the Lisa's software for another hundred pages (it's painfully obvious to me). But I'm going to force myself to stop. With what you have here for a beginning, the Lisa's manual and training program should be adequate to explain the rest.

So I'll now proceed to tell you how you finish a work session with the Lisa. That won't take long, since all you have to do is . . . turn the machine off. It doesn't matter whether you're in a window or on the Desktop—the Lisa saves onto the disk all the changes you've made to any document. As I said earlier, this is a safety feature that can't be praised too highly.

The Lisa also remembers what windows were open, their size, shape and location on the screen, etc., etc. When you turn the Lisa on again, it puts you back in exactly the same place, so you can begin working right where you left off.

Now that you have some sense of how the Lisa's software works, you may wonder why it takes the unusual and complicated approach it does.

I've already answered this question, but it bears restating: although this approach is more complex in some ways, Apple feels that it's much more intuitive and easier to learn, because instead of dealing with abstract concepts like "files" and "commands," you're manipulating (pictures of) actual physical objects just the way you do in the real, noncomputer world.

There is certainly some truth to this; the question is only whether the advantages of the Lisa's approach outweigh its disadvantages (expensive hardware, relatively slow operation, constantly having to move your hand from the keyboard to the mouse, and so on).

Apple talks about how easy the mouse/icon approach is to learn, but I think that this chapter—which is quite a bit more lucid than any of Apple's own training materials—clearly demonstrates that this is not the case. (I hope you found it easier to learn than I did, or else what would be the point of writing this book?)

But however confusing the first stages of learning the Lisa may be, things really begin to fall into place as you proceed. The mouse/icon approach does make sense on a more basic level than the user interface on most computers, and for many applications, it's spectacularly easy to use. In other words, it isn't much faster from 0 to 30, but from 30 to 60 it really eats up the road, and it can cruise all day at 75.

There's another advantage to Lisa's user interface: once you've learned it, you're set—it stays the same no matter what tool you're using. The usefulness of this will become obvious in Chapters 4 through 10.

But first I'll talk a little about how to get started using a Lisa and what you can expect your first session with it to be like.

3 Using a Lisa for the First Time

The basic Lisa manual—called the Owner's Guide—is designed to shepherd you through your first few anxiety-laden days (or weeks) with a Lisa, and it does a reasonably good job of that—although far from a perfect one.

The Owner's Guide is copiously illustrated and almost always paced slowly enough for even the most terror-stricken novice to follow. (Another nice thing about it: unlike many other computer manuals, it doesn't come in one of those vinyl binders that stink so much they make your eyes cross.) But for all its virtues, the Owner's Guide could be more complete, more thorough and somewhat better organized.

There's no sense in my going over all the things the Owner's Guide explains well, or repeating what I've already covered in Chapters 1 and 2. Instead, I'll just give you a few pointers that should make getting started on the Lisa a little less traumatic.

Before you can use the Lisa, you need to set it up. The procedures for doing that are in a four-page pamphlet that comes in the accessory box, and are also included in the Owner's Guide as an appendix. Fortunately, they're easy to follow and they steer you clear of several dangerous pitfalls.

The dealer who sells you a Lisa should initialize the ProFile for you, but if that hasn't been done, you'll have to do it yourself. (To **initialize** a disk means to

structure it to accept information.) Normally, in addition to initializing the ProFile, you want to make it the **startup device**. This means that when you turn the Lisa on, it will look to the ProFile for instructions on what to do. To do that, it must contain the Lisa's basic program—the Desktop Manager.

You load the Desktop Manager onto the ProFile from two floppies; they're labeled Office System I and II and you'll find them in slots in the cover of the Owner's Guide. In Section D of the Owner's Guide are several pages that tell you how to proceed. They walk you through the steps in a rather straightforward manner, but they omit one important fact—that it will take about fifteen minutes to accomplish the transfer.

If you're new to computers, you could easily panic during that time and think that something has gone drastically wrong with this new, sophisticated and very expensive toy of yours.

Naturally this sort of thing doesn't even begin to phase an old computer hand like myself. I realize that all I have to do is:

1. quickly make myself a big drink;
2. throw half of it down my throat;
3. slosh the rest of it all over the manual as I frantically flip through the pages, trying to figure out how I screwed up.

At the same time you put the Desktop Manager onto the ProFile, you should also load all the other tools (LisaDraw, LisaWrite, etc.). The Lisa is slow enough as it is, without having to load programs from floppy disks at a tenth the speed of the ProFile. (Here again, the dealer may have done this for you.)

If you're also hooking up a dot-matrix printer, you should install the parallel board in expansion slot #2 and hook up the printer to the top connector in the board. The printer will work if it's connected at any of the other six possible locations (top or bottom in slot #1, bottom in slot #2, top or bottom in slot #3, or the standard parallel port on the back of the console

itself), but the top connector in slot #2 is the only one that lets you automatically print what's on the screen at any given time (you do it by simultaneously pressing the right-hand Option key, the right-hand Shift key and the number 4 on the numeric keypad). This can be a handy feature, so why not take advantage of it?

Although the setup instructions for the printer are fairly clear, they are a bit confusing at certain points and would benefit from more photographs (as in the other manuals).

Before the printer will work, you have to open Preferences and tell the Lisa it's there. Then you're told to turn the Lisa off, connect the printer and turn the Lisa on again. (You'll have to do this even if your printer is already physically hooked up.)

Once you've got the whole Lisa system set up, you turn to Section A of the manual. Section A is only three pages long—which isn't surprising since it merely tells you how to turn the Lisa on and how to insert the disk that contains an on-screen training program called LisaGuide.

All the basic teaching about the Lisa is done by LisaGuide. It's an interactive program with a lot of branching. This means that it reacts to what you do; what it puts on the screen depends on what your last response was. If you get an answer right, it congratulates you. If you get it wrong, it says something euphemistic like "you don't seem to have the idea yet" and asks if you want to see a demonstration of the correct way to do it. LisaGuide gives you frequent opportunities to practice what you've already learned, to review earlier screens, or to skip ahead to a new topic.

The program is arranged into ten sections, or "topics." The manual recommends you complete the first six topics in one fell swoop and then look at the last four at your leisure. All ten are listed below, along with the concepts that are covered under each one.

1. *Of Mice & Menus*—the mouse, the desktop, automatic screen dimming, menus, the menu bar, menu items, highlighting

2. *Starting a Document*—disks, folders, documents, icons, windows, stationery pads, renaming documents
3. *Editing a Document*—opening documents, activating windows, inserting text, replacing text, cutting text, the clipboard, undoing changes
4. *Filing a Document*—creating a new folder, filing homes (where objects go when they're Saved & Put Away), closing a window with Save & Put Away, closing a window with Set Aside, filing a document
5. *Viewing a Document*—scroll bars, view arrows, elevators, view buttons, moving windows, the size control box, listing alphabetically, listing chronologically, listing pictorially, resizing windows
6. *Stopping LisaGuide*—this is just one screen that lets you decide whether you want to keep working with LisaGuide or take a break and come back later (actually, the manual has already told you how to do this at any point you want)
7. *More Editing*—selecting a word, selecting a group of words, moving text (also known as "cut & paste"), copying text, shadows
8. *More Filing*—copying documents, copying folders, creating stationery pads, discarding icons, the wastebasket, retrieving icons
9. *Shortcuts*—double-clicking, grouping icons with shift-clicking, grouping icons in a box, moving grouped icons, selecting all icons
10. *Summaries*—this is simply a collection of all of the on-screen summaries that have ended each of the preceding topics, useful as a quick reference

Of Mice & Menus, the cleverly named first section, is a delight—clear and easy to follow. But as LisaGuide goes on, it picks up the pace quite a bit and it begins to lob information at you somewhat relentlessly. Before

I used LisaGuide, I'd been around computers for several years and had written a number of books about them. I'd even played with some early prototypes of the Lisa. In other words, I was *not* a computer novice—and I am not now, nor have I ever been, a dope. So if *I* felt like I had to bob and duck my head as new terms and concepts crashed into the wall behind me, chances are a lot of other people will have the same experience.

This will be less of a problem for you, of course, since you've had the extreme good fortune to read my ravishingly cogent explanation of the Lisa's basic concepts in Chapter 2. But if you still feel lost—in spite of all I could do there—turn to Section B of the Owner's Guide.

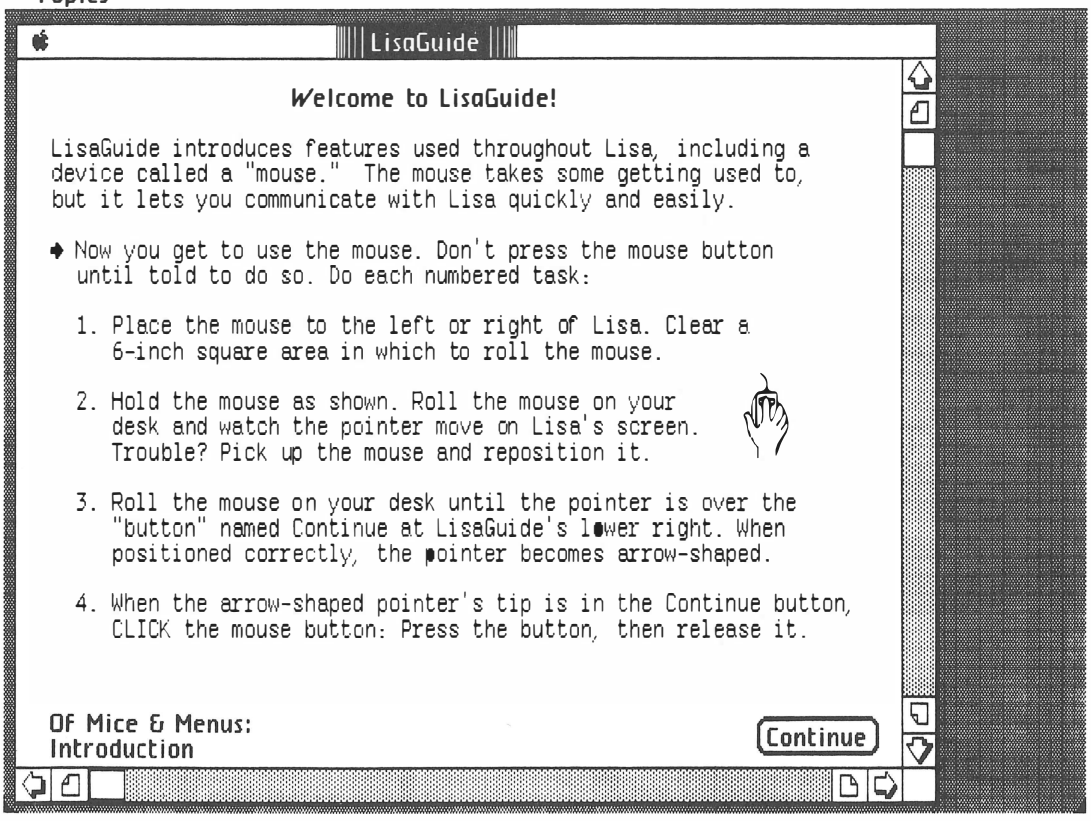
Unlike LisaGuide, which is a tutorial, Section B is arranged as a reference. This doesn't necessarily mean you should wait to read it until you've finished LisaGuide. People learn in different ways and some like to have an organized overview of a subject before being taken by the hand and led through it. So you can do LisaGuide and then read Section B, or you can read Section B before beginning LisaGuide—whichever feels more comfortable.

Section C gives you a brief overview of the Lisa hardware; you might want to read it to supplement Chapter 1 of this book.

Let's assume you've read what you want to read in the Owner's Guide and are now ready to begin LisaGuide. You put the LisaGuide disk into the top slot of the console and turn the Lisa on. The first thing you see is a screen that tells you that the Lisa is checking its CPU, memory, I/O functions, and so on, before letting you use it—an excellent safety feature. (I would have showed you this screen, except I couldn't get the Lisa to print it—which makes sense, since if it's still checking itself out, how can it proceed to some other activity, like printing the screen?)

Next you see Figure 3–1. The Lisa has automatically loaded LisaGuide and put you at the beginning of Of

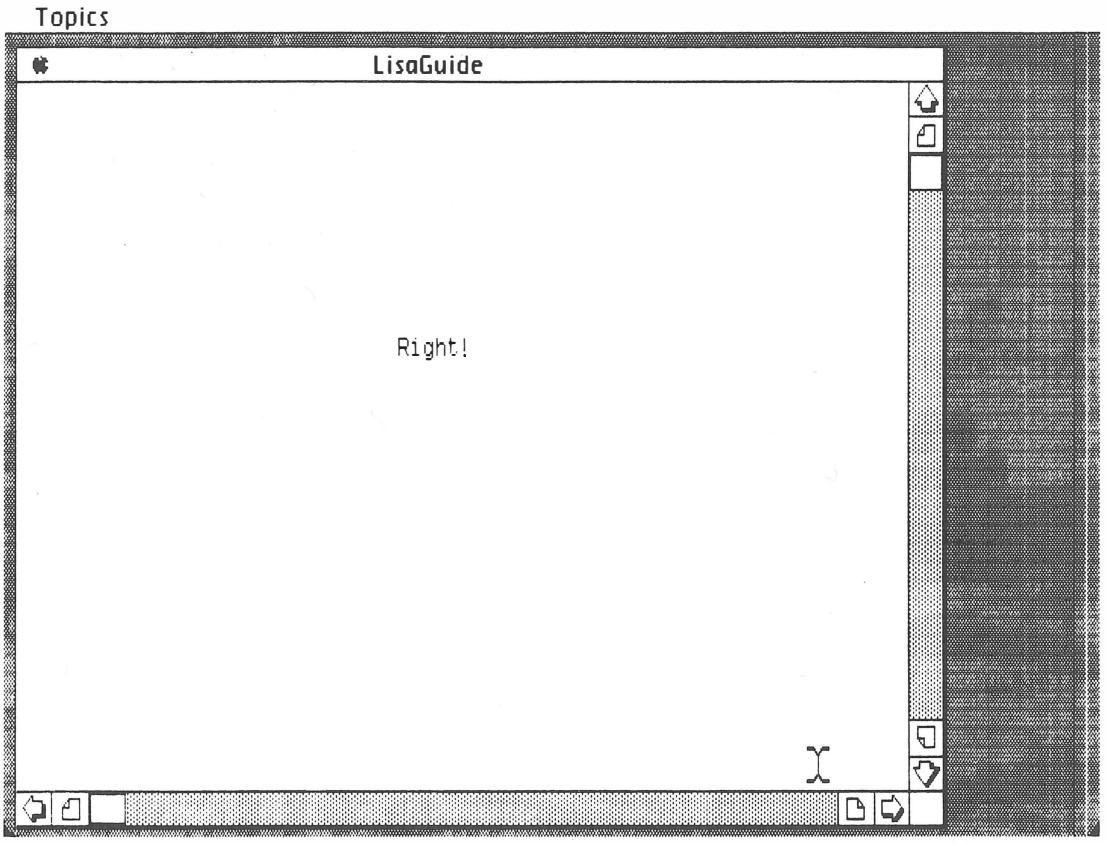
Figure 3–1



Mice & Menus. When you click on Continue, you see Figure 3–2. Doesn't that make you feel warm all over? LisaGuide continues to give you encouraging slaps on the back all the way through to the end.

By the time you've finished LisaGuide, Section B of the Owner's Guide and Chapter 2 of this book, you should feel quite comfortable with the Lisa and be ready to move on to the tools that actually allow you to "do useful work." But it *has* taken a bit more than half an hour, hasn't it?

Figure 3–2



4 Word Processing with LisaWrite

LisaWrite, the word processing program that comes as a standard feature with the Lisa, is very powerful in its graphic and formatting capabilities but fairly clumsy for the entering and editing of text. In spite of that, I'll spend more time on LisaWrite than on any other tool, because word processing is far and away the most common use of a computer in an office setting.

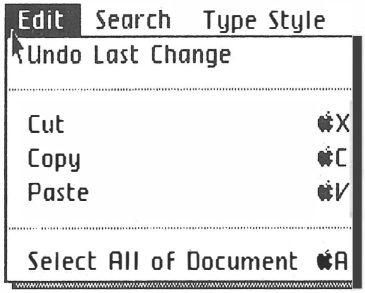
Eighty percent of all office jobs involve writing, and according to a recent study conducted at the University of California, word processing is what people most often use their personal computers for—in spite of the fact that they rank it fourth out of five major tasks when asked, before they buy a computer, what they intend to use it for.

The first two menus in LisaWrite (aside from our old friend, File/Print) relate to editing, so I'll cover that area first.

Editing

The **Edit menu** (shown in Figure 4–1) works more or less the same way in all seven tools as well as in the Desktop Manager, so I really should have covered it in Chapter 2. But that chapter got to be longer than a post office line, so I only discussed the Undo command there. Since editing commands normally fall under the aegis of word processing, I'll discuss the rest of them here.

Figure 4–1

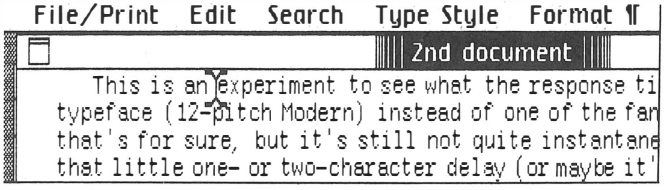


When editing text, as always on the Lisa, you have to select something before you can do anything to it. The Lisa lets you select any amount of text from a single character to a whole document. Let's start small:

To select text character by character, you place the text pointer at the beginning of it and hold down the mouse button. (Don't release the button, because that will just deposit the insertion point; if you release it by mistake, simply push it down again and hold it.)

In Figure 4–2, I put the text pointer at the beginning of the word "experiment" (in the first line). Then I held the button down and moved the text pointer to the right. This produced Figure 4–3. As you see, the selected text is highlighted.

Figure 4–2



It's also possible to move backward from the initial position, as I did to produce Figure 4–4.

Although a selected piece of text can be any size, you can only select one piece at a time. The selected text always begins from the place where the text pointer was when you first pushed the mouse button.

Figure 4–3

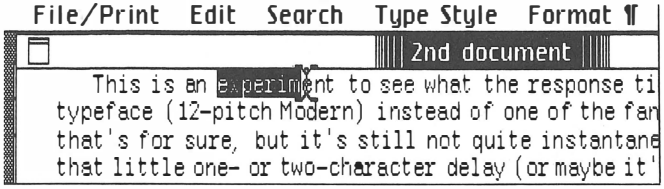
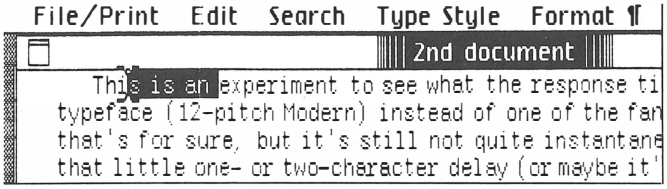


Figure 4–4



If you want to change the initial position, you put the text pointer at the new location and push the button again; the previously selected section of text de-highlights (goes back to normal). Relocating the insertion point works in the same way—when you deposit it in a new place (by moving the text pointer there and clicking the button), it disappears from its previous location.

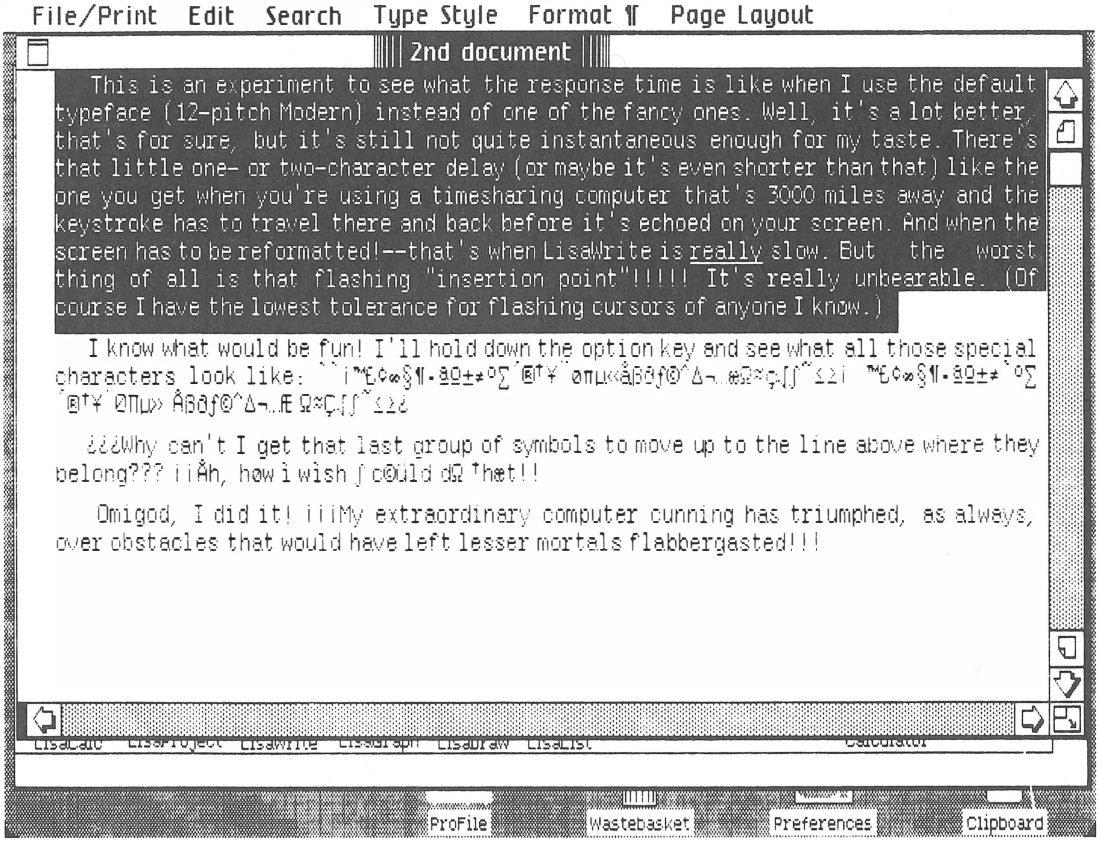
Now you can see how selecting a lot of text by the method I just described would get pretty tedious. So the Lisa gives you a way to select words. You put the pointer anywhere on the word and click the mouse button twice in rapid succession (Preferences lets you choose just how rapid that succession has to be).

If you click twice and hold the mouse button down, text will be selected word by word when you move the pointer, rather than character by character.

There's also a way to select whole paragraphs—you just put the pointer anywhere in the paragraph and click three times. (That's what I did to produce Figure 4–5). If you triple-click and hold the button down, you can move the pointer straight down through the text and select it paragraph by paragraph.

But even that can get tedious if you're selecting a very large amount of text. So the Lisa gives you the

Figure 4–5



option of selecting the entire document. This is done with an item in the Edit menu (at the bottom of the menu in Figure 4–1); Figure 4–6 shows the result.

OK, now you've selected a hunk of text; what can you do with it? As the Edit menu tells you, you can Cut, Copy or Paste it. **Cut** is self-explanatory. If you select this menu item, the selected portion of text—whether it's as little as one character or as much as a whole document—is deleted (and placed in Clipboard).

You also use Cut when you want to move a block of text. Since the text doesn't disappear (but rather goes into Clipboard), you can proceed to **Paste** it anywhere you want. You just move the pointer where you want

Figure 4–6

the block of text to go, deposit the insertion point there, move the pointer up to the Edit menu and select Paste. The block of text jumps out of Clipboard and back into the document right at that point.

Copy works similarly, except that when you Copy a block of text, it doesn't disappear from its original location in the document when it goes to Clipboard. So when you Paste it into its new location, you have it in both places.

And that's all there is to using the Edit menu. It really couldn't be much simpler.

The next menu is the **Search menu** (Figure 4–7). You use it to look through an entire document for a word or phrase. You can simply find each place where it occurs, or you can change it to something else.

Figure 4–7

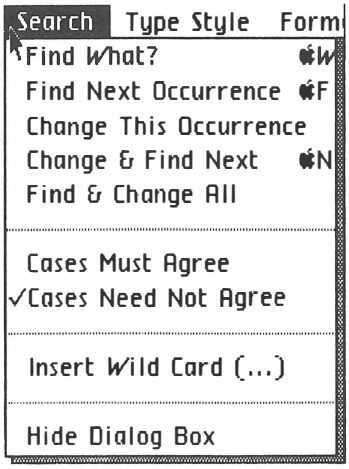
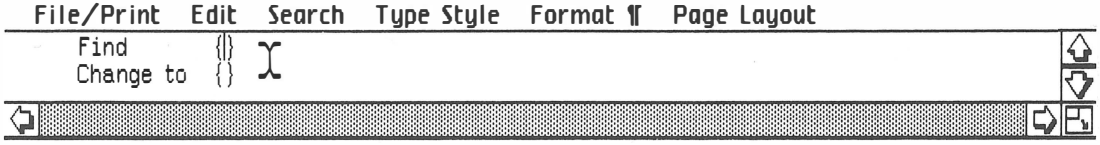


Figure 4–8



In either case, you begin with the **Find What?** menu item. Selecting it produces the dialog box you see in Figure 4–8. You move the pointer between the curly brackets after Find and type in the word or phrase—in computer jargon, the **string**—you're looking for. Let's look for the phrase "this typeface". (I put the period outside the quotes in that last sentence to make it clear that a period is not part of the string we're going to search for.)

The Lisa will not only find "this typeface" but also "This typeface". If you only want it to find "this type-

face"—with the first letter not capitalized—you select the **Cases Must Agree** menu item. But since you usually want to find all occurrences of a string, regardless of whether or not it begins a sentence, **Cases Need Not Agree** is the default.

Now—if you simply want to find all the occurrences of "this typeface", you just keep selecting **Find Next Occurrence** from the Search menu over and over again. Each occurrence of the string will be highlighted. But the first occurrence of "this typeface" is under the dialog box. So first you have to select **Hide Dialog Box** (the last item on the Search menu). Then you can see the first occurrence highlighted (Figure 4–9), as well as the second (Figure 4–10).

Figure 4–9

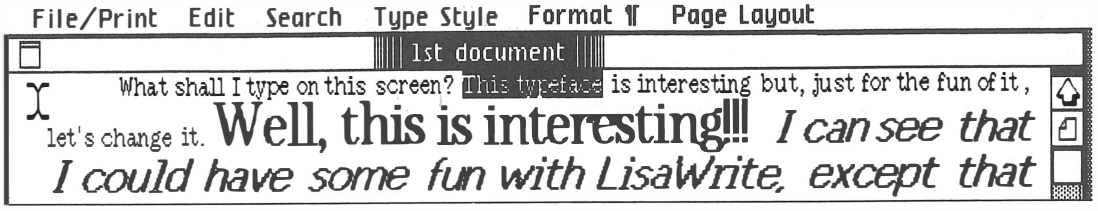
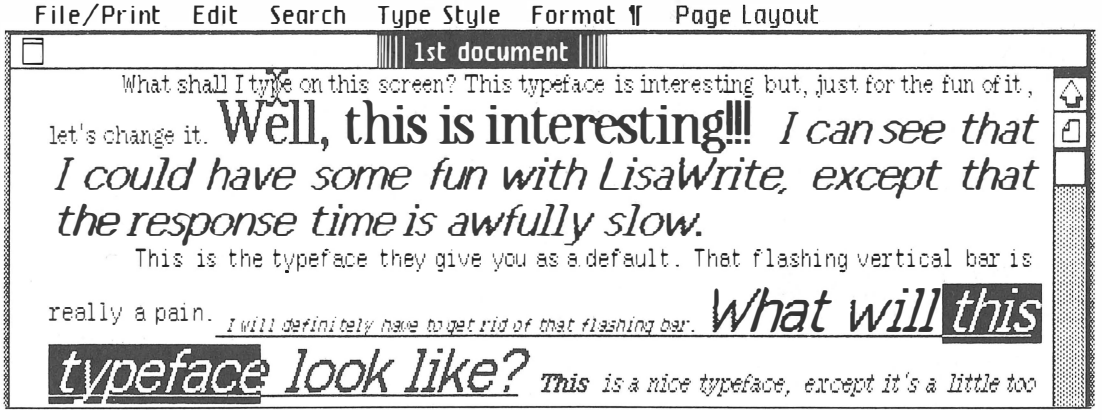
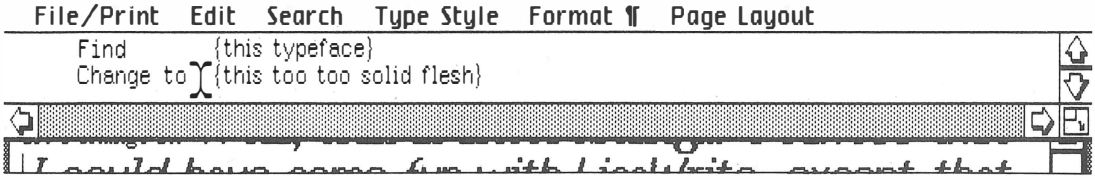


Figure 4–10



Often, however, you'll not only want to find the string but change it. In that case, you type in a replacement string after the words **Change to** in the dialog box. Let's change "this typeface" to "this too too solid flesh" (Figure 4–11).

Figure 4–11



One way you can do this is by first finding the occurrence you want to change, and then selecting **Change This Occurrence** from the menu. If you're planning to make a number of changes, **Change & Find Next** is more convenient; as its name suggests, it changes the occurrence that is presently highlighted and then moves on to the next occurrence and highlights it. Figure 4–12 shows the result of selecting Change & Find Next when the first occurrence of "this typeface" (in the first line) was highlighted.

Figure 4–12

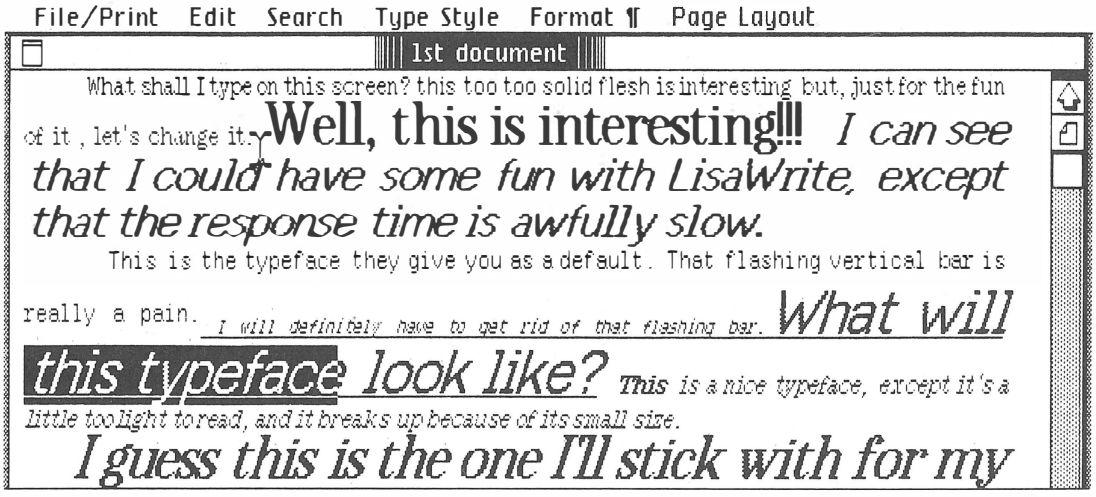
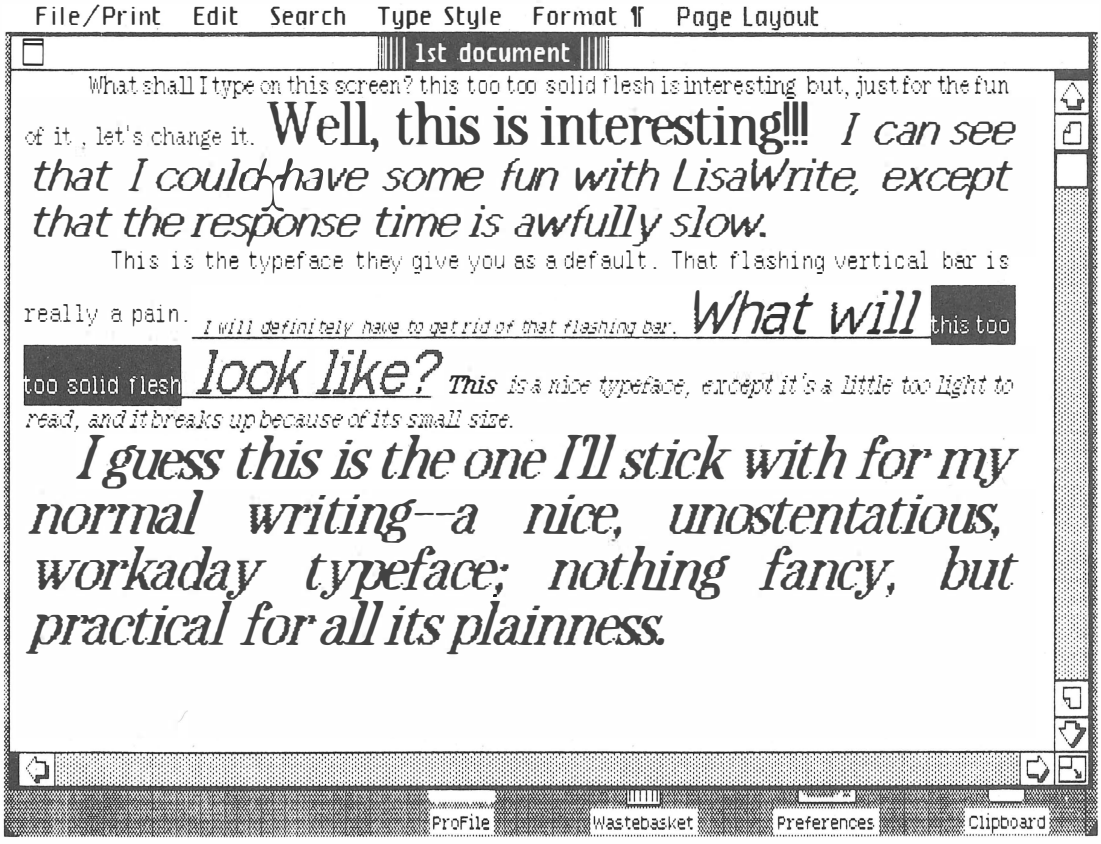


Figure 4–13



For real speed, you can use **Find and Change All**. This changes every occurrence without consulting you; it leaves the last change highlighted (as in Figure 4–13). Use this command with caution; if you make a mistake with it, the damage can be rather extensive.

Notice that although LisaWrite is smart enough to find all occurrences of "this typeface" whether or not it's capitalized and regardless of what font it's in, it's not smart enough to make the string being substituted consistent with the string being replaced. Thus, in Figure 4–13, the "this" in the first substitution (on the first line) is not capitalized, and in both substitutions, "this too too solid flesh" stays in the type font used in the

dialog box, rather than the type fonts "this typeface" was in.

There are a number of fancier tricks you can play with the Search menu, but that's enough for a general introduction.

LisaWrite has a special feature that no other tool has, and it's quite a powerful one. If you look at any illustration that shows the whole LisaWrite window (Figure 4–13, for example), you'll notice there's a thick black bar above the up scroll arrow and another one to the left of the left scroll arrow. These are the **split controls** and you can use them to divide the window into as many different horizontal and/or vertical views of the document as you want.

Each of these views acts as an active window; you can scroll text through it to any point you want. Splitting the window into many different views is particularly useful in a long document (where, for example, you may want to compare what you said about your psychopathic sales manager on page 20 with what you said on pages 6, 14 and 32).

By this point you may be wondering what's wrong with LisaWrite for editing and entering text? It certainly seems powerful enough, easy to use, elegantly designed. Well, it has the following problems:

- You have to keep moving your hand from the keyboard to the mouse. (This is more of a problem for word processing than for any other application.) The "Apple characters" (which you get by holding down the Apple key plus a letter) help some, but you still need to use the mouse a lot. Apple characters merely cut down on excessive movement of the mouse; they don't eliminate the need for it altogether.
- Most word processors have single commands to do things like delete a word or delete a line, but not the Lisa. Having to:
    a. select the text you want,
    b. move up to the menu, and
    c. select a menu item

is much more time-consuming and clumsy—even aside from the fact that you have to move your hand off the keyboard to do it. This is true even if you can substitute an Apple command for *b* and *c*.

- Many operations, particularly those that involve scrolling and/or rewriting the screen, take a painfully long time.

No, editing is not LisaWrite's forte. What it's good at is formatting and similar graphic applications. So let's get on to that.

Formatting

LisaWrite not only gives you an enormous amount of graphic flexibility, it makes it easy for you to see what you're doing, since margins, line justification, line breaks, page breaks, page numbers, headers, footers, bold, italic and underlined text all display on the screen exactly as they appear on paper.

Figure 4–14

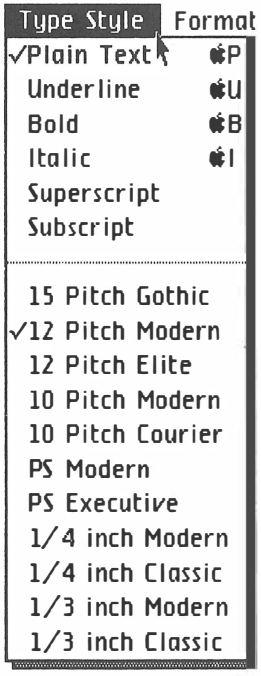
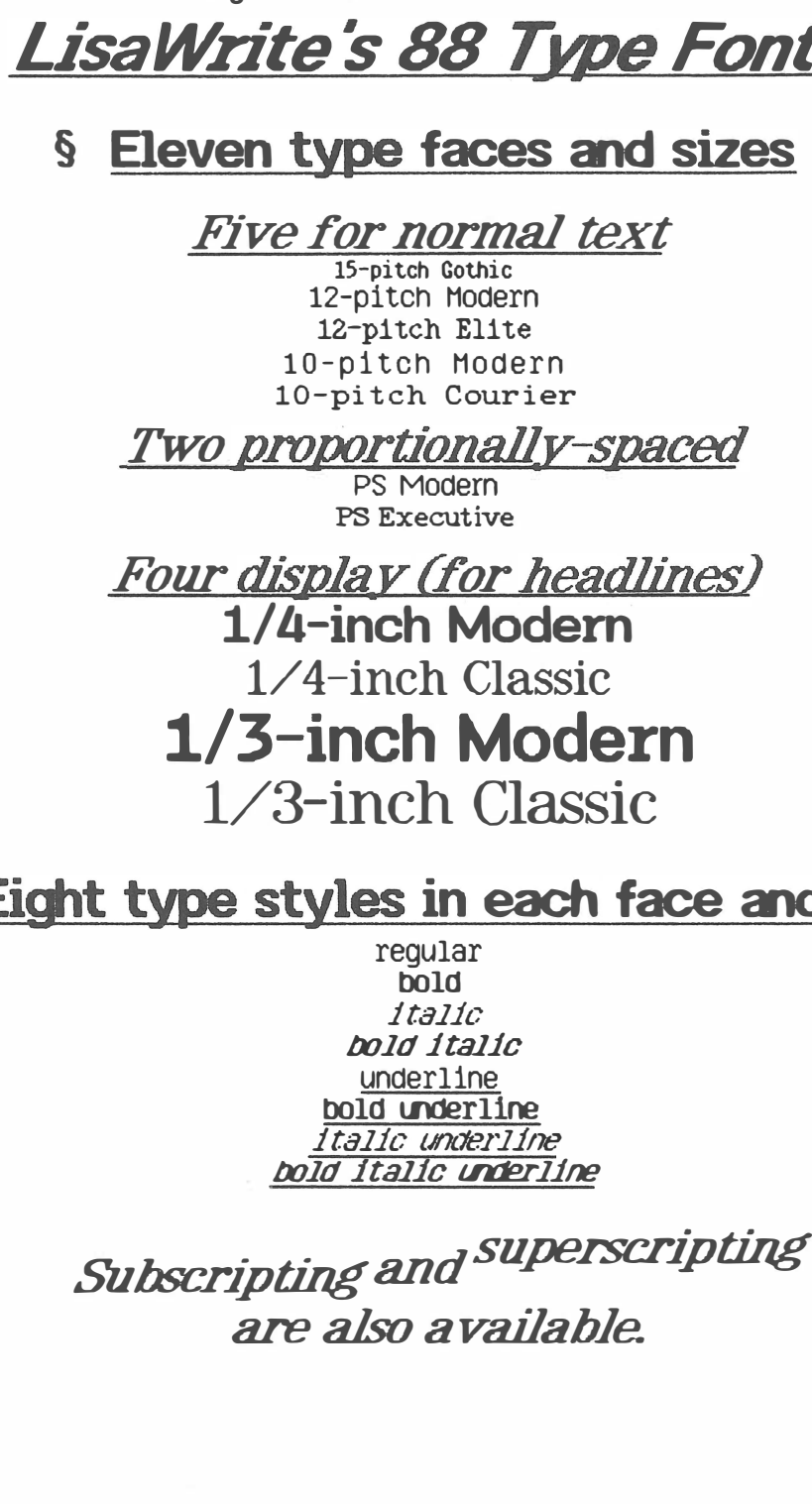


Figure 4–15


LisaWrite's 88 Type Fonts
§ Eleven type faces and sizes
Five for normal text
15-pitch Gothic
12-pitch Modern
12-pitch Elite
10-pitch Modern
10-pitch Courier
Two proportionally-spaced
PS Modern
PS Executive
Four display (for headlines)
1/4-inch Modern
1/4-inch Classic
1/3-inch Modern
1/3-inch Classic
§ Eight type styles in each face and size
regular
bold
italic
bold italic
underline
bold underline
italic underline
bold italic underline
Subscripting and superscripting
are also available.

LisaWrite **Type Style menu** (Figure 4–14) offers eleven different type faces and sizes, each of which can be printed regular, bold or italic, with or without underlining. This makes a total of 88 possible type **fonts** (face, size and style combinations)—all of which are shown, as such, on the screen.

(Most word processors are capable of producing three type fonts—regular, boldface and underline, all in the same face and size—none of which is shown as such on the screen. And yet LisaWrite's capabilities are nothing compared to LisaGraph's and LisaDraw's—they can produce *264!* different type fonts.)

Figure 4–15 shows the eleven type faces and sizes and eight type styles that combine to produce LisaWrite's 88 fonts. All of them can be subscripted—placed slightly below the line, as in H_2O—or superscripted—placed slightly above the line, as in $E = mc^2$.

Figure 4–16

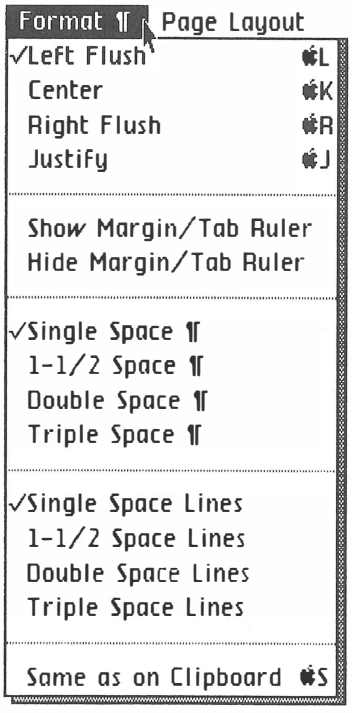
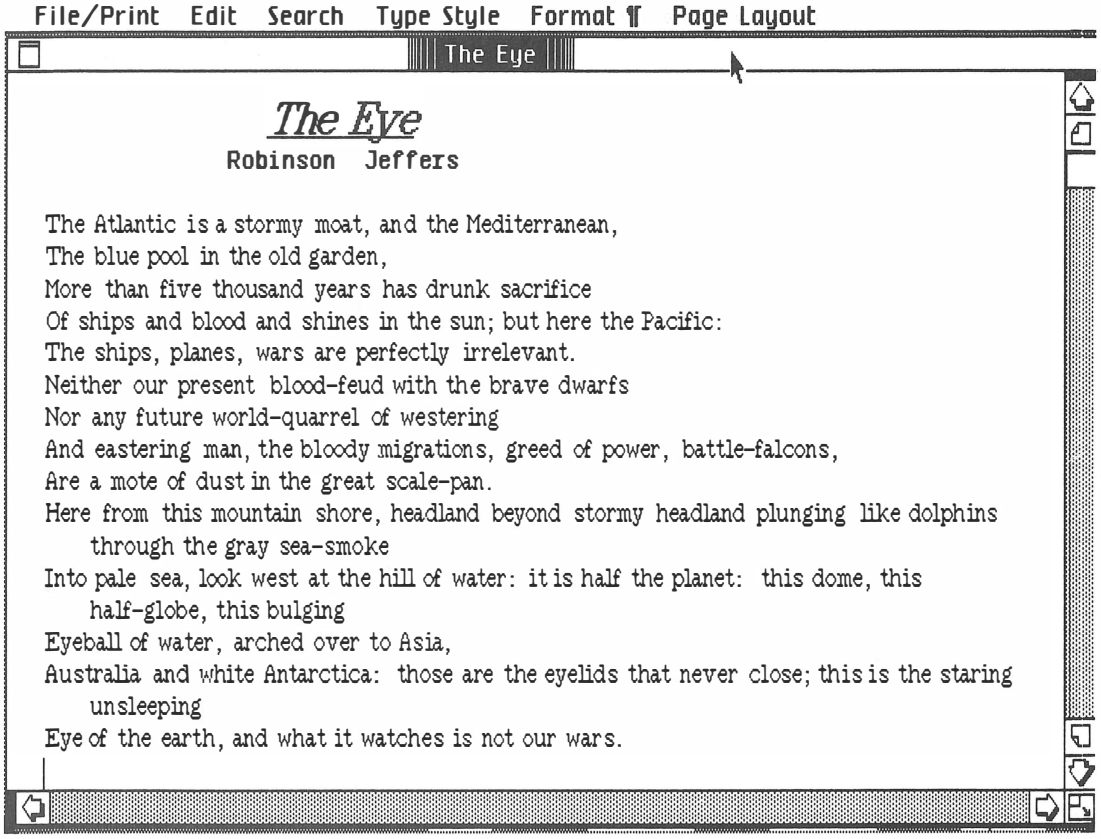


Figure 4–17

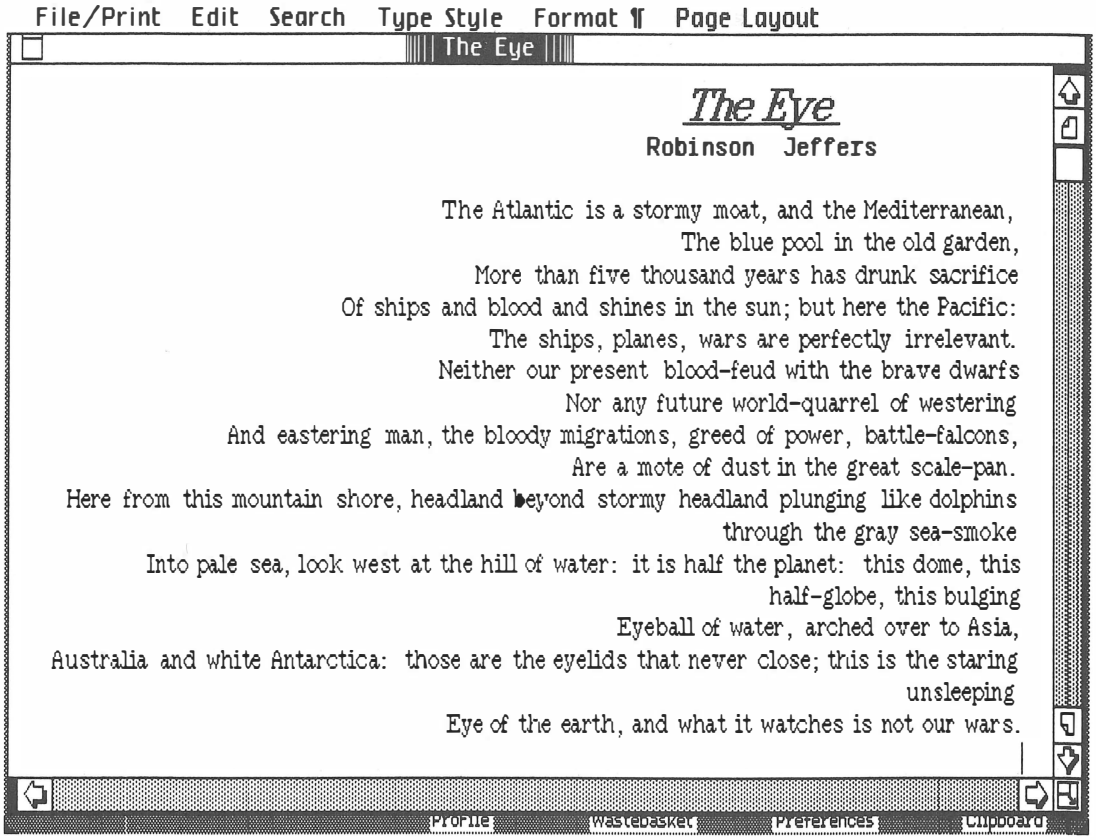


(For those of you familiar with typesetting, 15-pitch Gothic is a 7-point face and ⅓-inch Modern and Classic are 24-point faces. For those of you not familiar with typesetting, there are 72 points to an inch, making 7-point (15-pitch) Gothic a little less than $\frac{1}{10}$ inch tall.)

LisaWrite's **Format ¶ menu**, shown in Figure 4–16, gives you a choice of four kinds of **justification**:

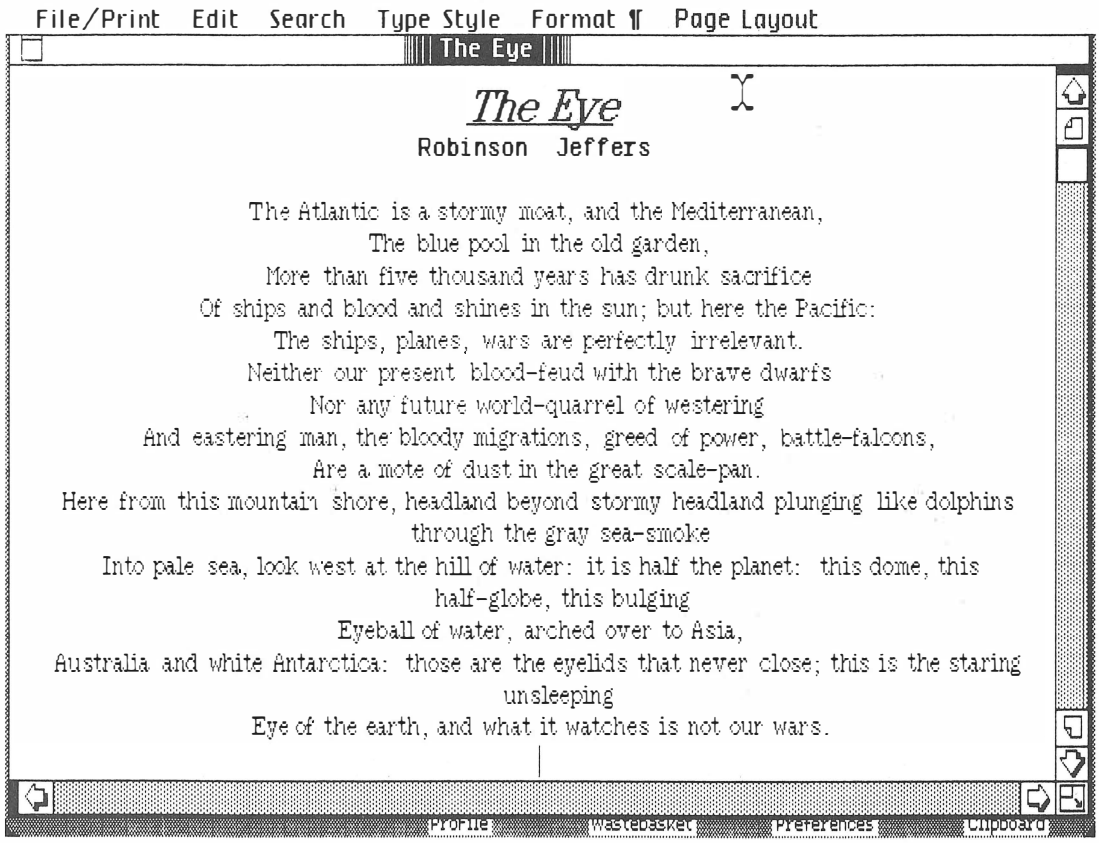
- **Flush left** (straight left margin, "ragged" right margin), shown in Figure 4–17 (the title looked funny flush left, so I moved it over). This is the normal format for typewritten copy.

Figure 4–18



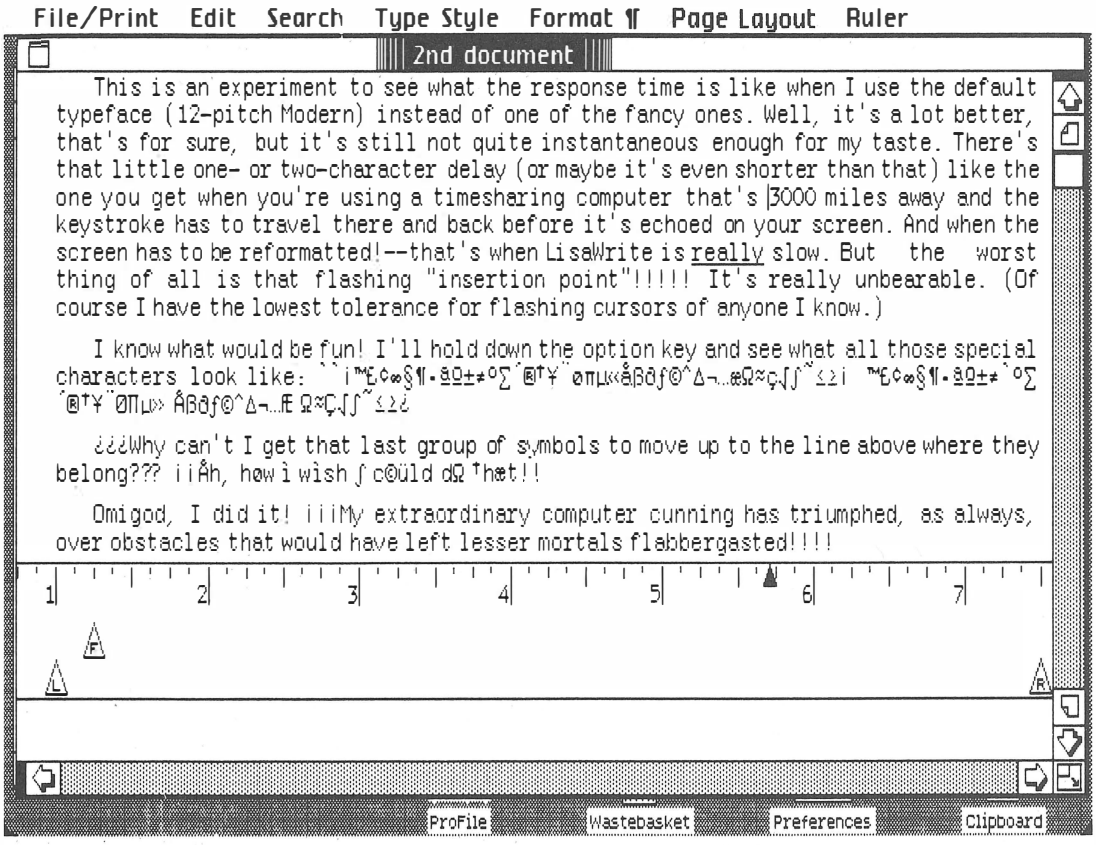
- **Flush right** (straight right margin, ragged left margin). This is not used much in normal text, but actually looks quite nice in a poem, as Figure 4–18 illustrates (here again, I moved the title over).

Figure 4–19



- **Centered** (which amounts, in effect, to left and right margins that are symmetrically ragged). Centering is used, of course, mostly for titles, but it has certain other specialized applications (as in Figure 4–19).

Figure 4–20



- **Justified** to both margins (both margins straight) is the norm for typeset copy, and is being used more and more for business letters. Jeffers' poem has been great for demonstrating the previous three formats, because its lines vary so greatly in length. But no poem is any good at showing justified text, because each line ends in a "forced line break." Since no text runs on from one line to the next, there's no difference between justified text and flush left text. So I've used something a lot less moving (Figure 4–20) as an example of justified text.

As you can see, the Format ¶ menu gives you a choice of various line spacings, and lets you vary the

spacing between paragraphs independently of the spacing between lines. The choices are quite limited, particularly for a graphically sophisticated system like the Lisa. Even the relatively inexpensive word processing program I'm using to write this book lets me vary line spacings from ⅛ of an inch to 32 inches in ⅛-inch increments.

Lisa's visual approach is carried over to the setting of margins and tab stops. First, you select **Show Margin/ Tab Ruler** from the Format ¶ menu. Figure 4–20 shows the screen with the ruler displayed. The small black triangle indicates the present position of the insertion point (see it up there on line 5, just before "3000"?). The triangles marked L and R show the left and right margins; the triangle marked F sets the left margin for the first line of each paragraph.

By moving the F triangle to the right of the L triangle, you can indent each paragraph—which, of course, is what you normally want to do. Notice how the indentations at the start of each paragraph all line up with the F triangle.

You can also place the F triangle to the right of the L triangle; this will give you an outdented line (also

Figure 4–21

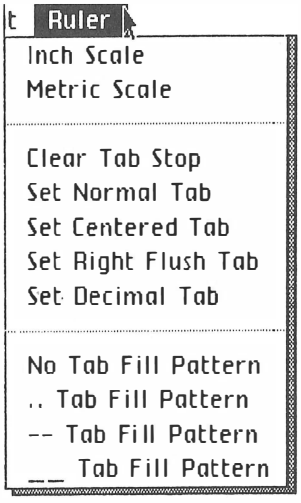
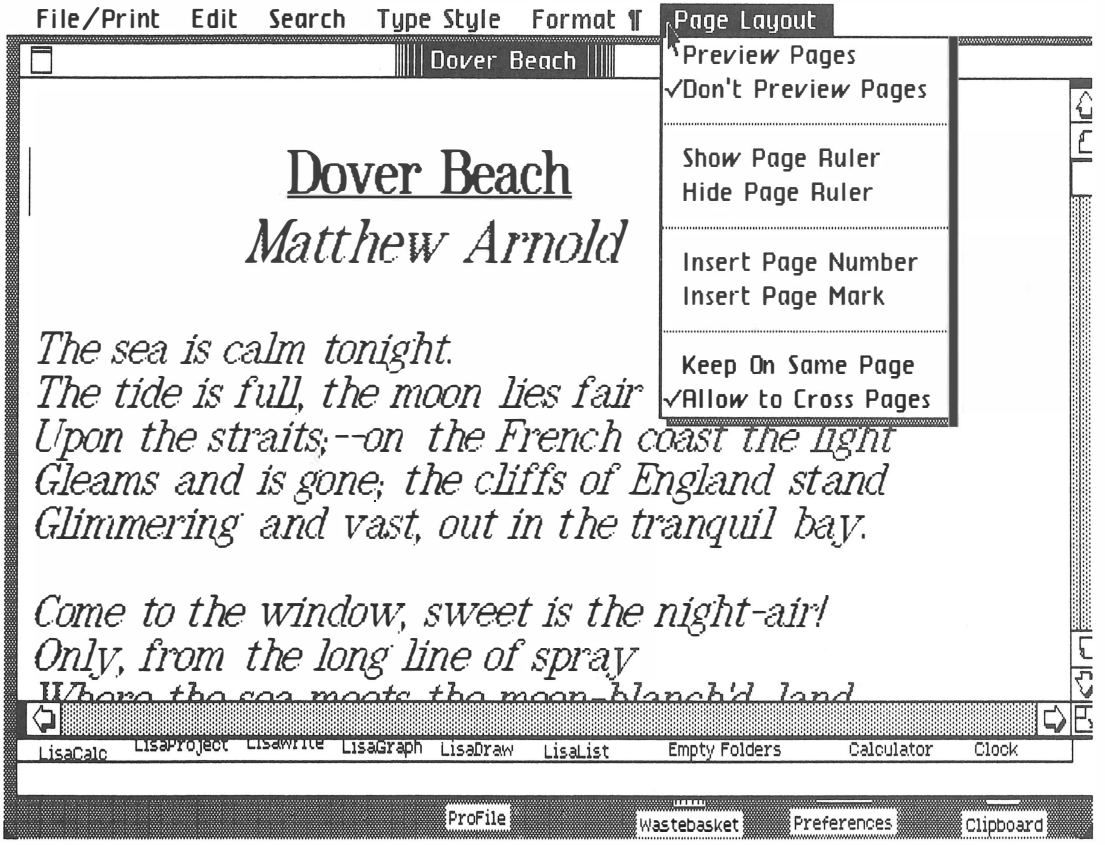


Figure 4–22

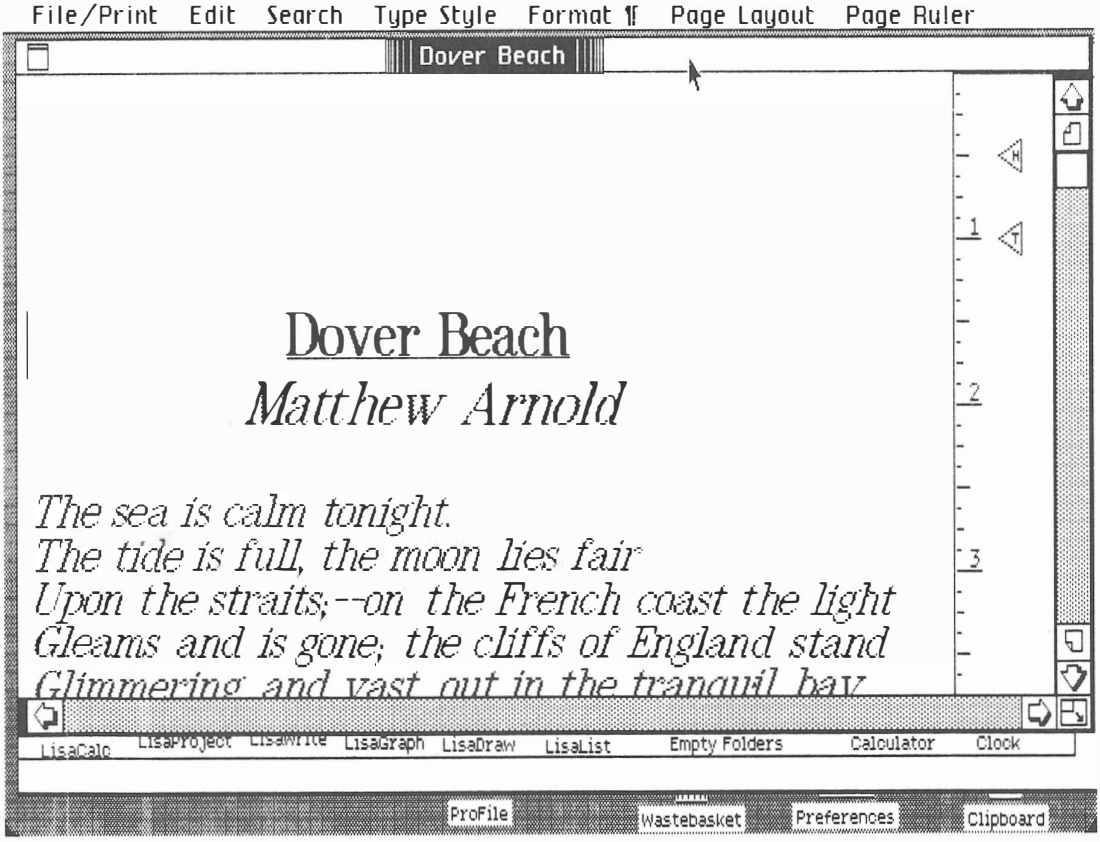


called a hanging indent) at the beginning of every paragraph. Outdents are commonly used in outlines.

When you display the Margin/Tab Ruler, a new menu title appears on the menu bar: **Ruler**. It's shown in Figure 4–21.

As you can see, the Ruler menu lets you decide whether you want the ruler marked in inches or centimeters; more importantly, it gives you a wide variety of tab stops and fill patterns to choose from. (A **fill pattern** is what shows up between the columns of information you have at each tab stop. The dots, dashes or underlines make it easier for your eye to follow a row across the page than when the space between each column is blank.)

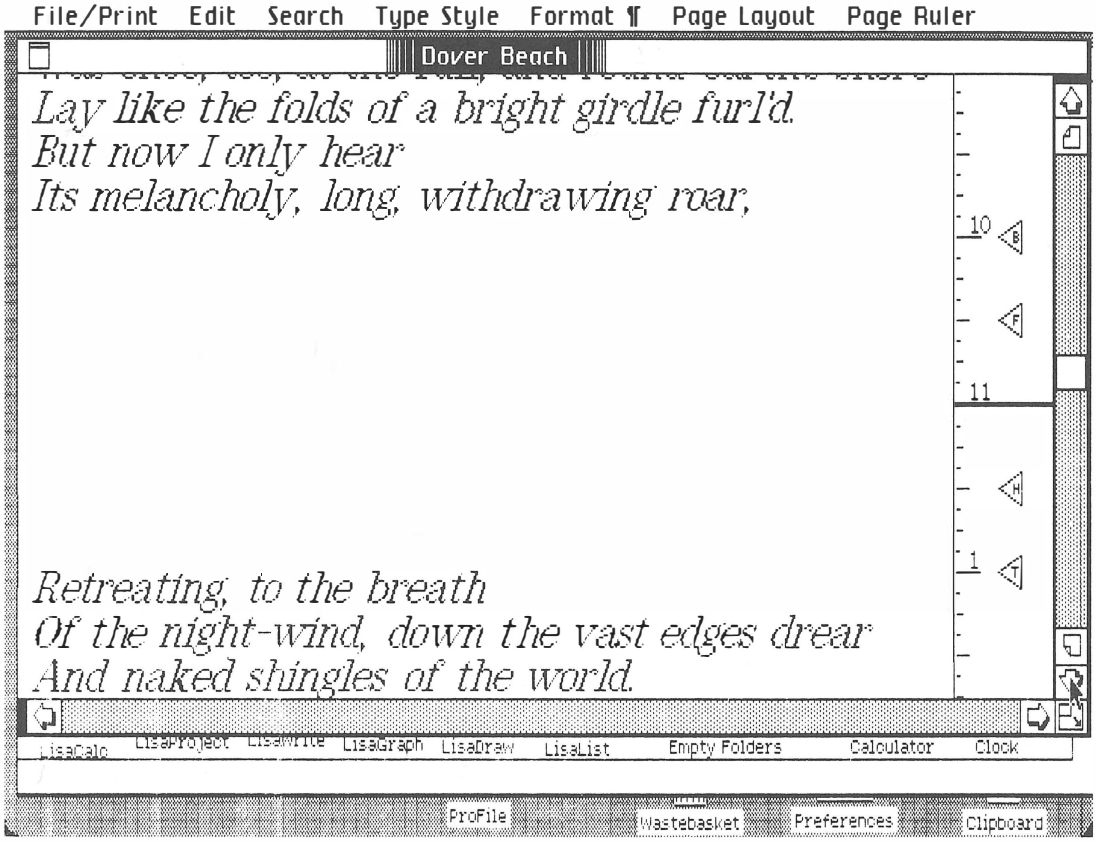
Figure 4–23



The last of the formatting menus is **Page Layout**, shown in Figure 4–22. With it you can display the **Page Ruler**, which is the vertical equivalent of the Margin/Tab Ruler. It also lets you **Preview Pages**—that is, you see on the screen how each page will look, complete with **headers** and **footers** (text that appears at the top or bottom of every page) and top and bottom margins.

In Figure 4–23, I've selected Preview Pages and Show Page Ruler. The Page Ruler is marked in inches but, as with the Margin/Tab Ruler, you can have it in centimeters if you want (by using the **Page Ruler menu** which has just appeared on the menu bar). Notice that the text has moved farther down on the screen than it

Figure 4–24



was in Figure 4–22; that's because, on a printed page, room would be left for a top margin and a header.

There is no header in Figure 4–23, but the H triangle shows where it will fall. Whatever you type on the H triangle line becomes the header, and you can move the H triangle (and therefore the header line) anywhere on the page.

The T triangle shows where the top line of text falls (actually, the top of that line). You can see that the default for the top margin is 1 inch (since the T triangle is right at the 1-inch mark).

If you scroll down to where the page breaks, you'll see something like Figure 4–24. The heavy line just be-

low the 11-inch mark on the Page Ruler indicates the page break. The B and F triangles at the bottom of the first page indicate, of course, the bottom line of text and the footer line (which works just like the header line).

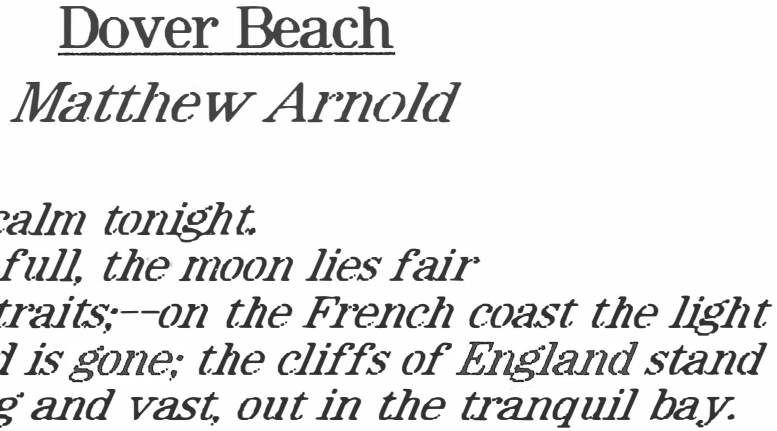
You can insert a page number in either the header or the footer; just as the headers and footers are inserted automatically on every page, so the page number will change automatically.

And that more or less covers the main features of LisaWrite. Weak as it is in editing speed and convenience, LisaWrite can produce really beautiful printouts—light years beyond anything that can be done on the average word processor, or even on dedicated word processors that cost $10,000 and more (with the exception, of course, of the Xerox Star 8010, after which the Lisa is modeled).

Figure 4–25 gives an example of such a printout. (You didn't think I was going to tease you with that poem and not show you all of it, did you? O ye of little faith.)

Now that you have a feeling for how LisaWrite works, it's time to go on to the other tools. Don't expect an equally extensive treatment for each of them. If I did that, I'd never finish the book.

Figure 4–25



Come to the window, sweet is the night-air!
Only, from the long line of spray
Where the sea meets the moon-blanch'd land,
Listen! you hear the grating roar
Of pebbles which the waves draw back, and fling,
At their return, up the high strand,
Begin, and cease, and then again begin,
With tremulous cadence slow, and bring
The eternal note of sadness in.

Sophocles long ago
Heard it on the Aegean, and it brought
Into his mind the turbid ebb and flow,
Of human misery; we
Find also in the sound a thought,
Hearing it by this distant northern sea.

The Sea of Faith
Was once, too, at the full, and round earth's shore
Lay like the folds of a bright girdle furl'd.
But now I only hear
Its melancholy, long, withdrawing roar,
Retreating, to the breath
Of the night-wind, down the vast edges drear
And naked shingles of the world.

Ah, love, let us be true
To one another! for the world, which seems
To lie before us like a land of dreams,

So various, so beautiful, so new,
Hath really neither joy, nor love, nor light,
Nor certitude, nor peace, nor help for pain;
And we are here as on a darkling plain
Swept with confused alarms of struggle and flight,
Where ignorant armies clash by night.

5 Managing a Data Base with LisaList

After word processing, the most common task a computer is used for is probably data base management—the handling of large amounts of information. This information can be the names and addresses of all your creditors, weekly sales figures for each of your seven marketing regions, the horoscopes of the wives of all the vice presidents of the United States, or just about anything else you want to keep track of. Whatever the data is, the usual (and easiest) way to handle it is in the form of a list.

When you "tear off a sheet" of LisaList Paper and open the document thus created, you get a window that looks like Figure 5–1. The first thing to do is name each of the columns you're going to use; I've done this in Figure 5–2, as if this were a list of overdue accounts you plan to send a collection letter to.

Notice that we have a new kind of pointer down in the grey part of the screen. It's called—descriptively enough—the **hollow cross-hair pointer** and it's used to select things within the list itself—as opposed to our old friend, the arrow pointer, which is used to select icons, scroll controls and menu items that aren't within the list itself.

After you've named the columns, you tell LisaList what kind of data you want to put in each one. Notice

Figure 5–1

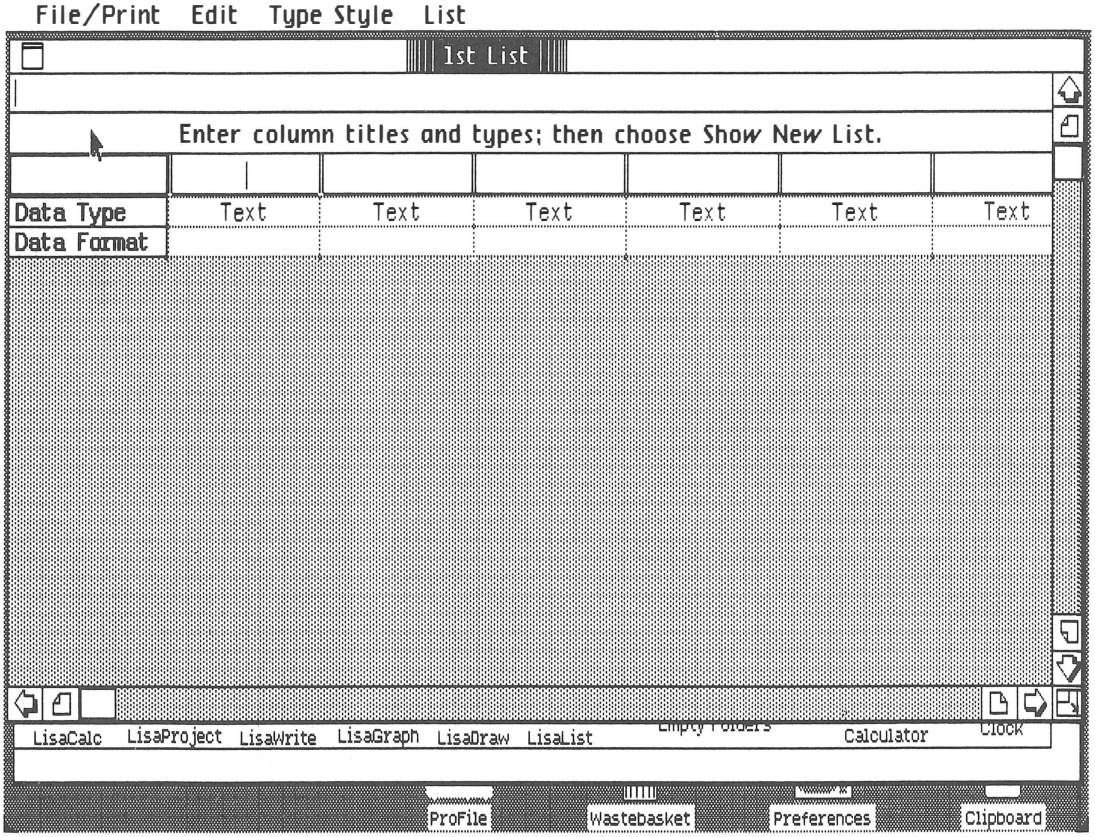
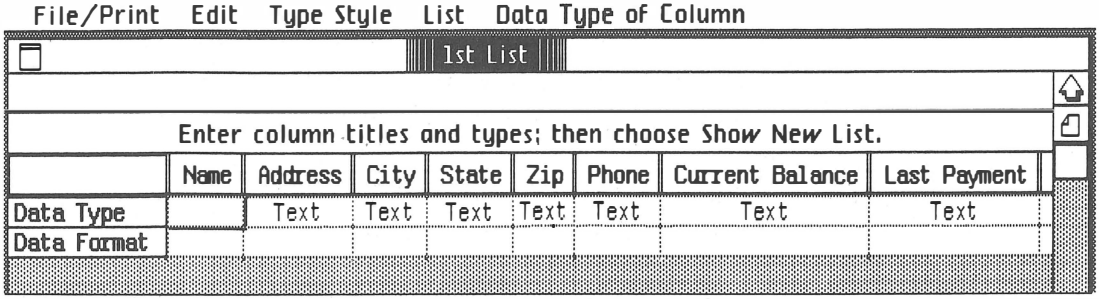
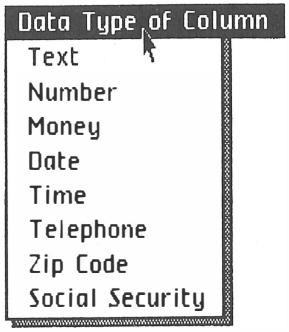


Figure 5–2



that a new menu title has appeared—**Data Type of Column**. This menu, displayed in Figure 5–3, lets you change the data type of each column from the default (Text) to one of the other alternatives.

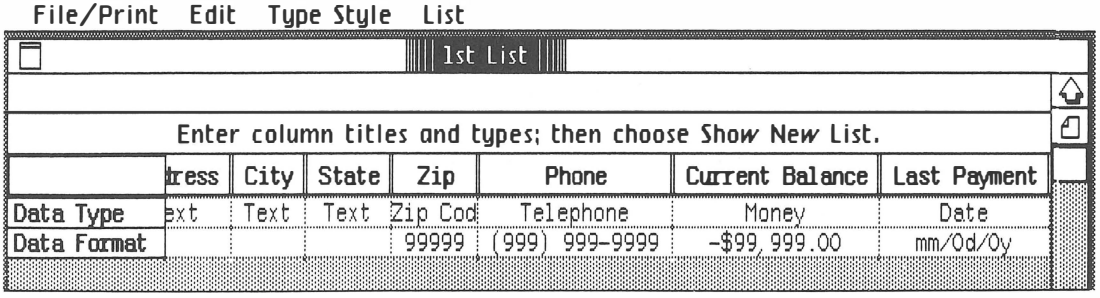
Figure 5–3



Text is the catch-all category and covers either letters and numbers mixed (as in a street address) or just letters (as in a name). The other seven data types don't allow letters. Number is the general category; and the others are specialized number formats.

When you pick a data type, the Lisa supplies a default format in the **Data Format** row (as in Figure 5–4). You can edit the format if you want—to allow for nine-digit zip codes, for example. (Notice that the table has scrolled left to accommodate the new, wider columns.)

Figure 5–4



What's the point of specifying data types? Well, sorting is one of the main things you'll want to do with LisaList, and it needs to know what kind of data it's sorting in order to do an accurate job. LisaList can do sophisticated kinds of sorts if it knows the data type; for example, it understands that 10 A.M. comes before 5 P.M.

LisaList also reviews the information you enter in a column to make sure it fits the data type you've selected—so if you try to enter a seven-digit number when the data type is Social Security, you'll get an error message (since social security numbers always have nine digits).

LisaList will even try to correct an entry for you. For example, if you enter a number when the data type is Money, but leave the dollar sign off, LisaList will supply it. And you can type in phone numbers and social security numbers without having to bother with the hyphens and parentheses; here again, LisaList will supply them.

Before you can begin entering information on a list, you have to select **Show New List** from the **List menu** (Figure 5–5). This locks in the data type for each column (although you can rename the columns if you want), makes the Data Type and Data Format rows dis-

Figure 5–5

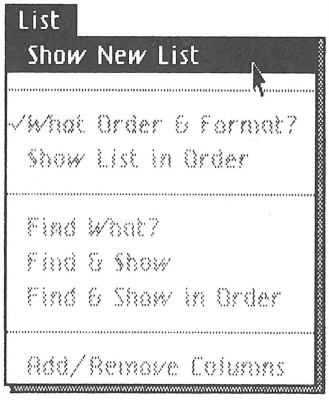
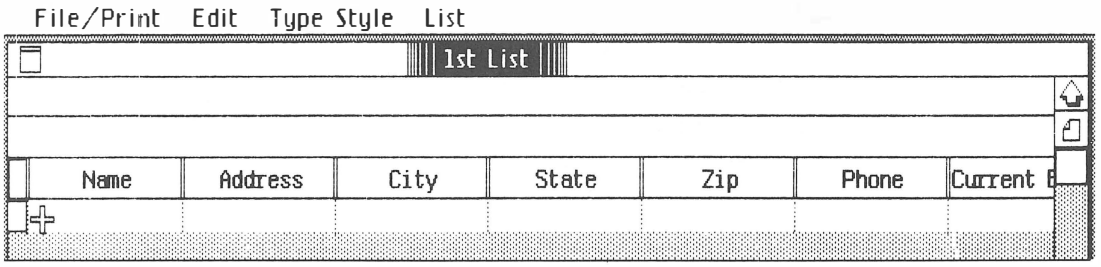


Figure 5–6



appear, and gives you a blank row to begin typing on (Figure 5–6).

To start putting in the data, you place the hollow cross-hair pointer in a **field**—the little box at the intersection of a column and a row—and click the button. The field highlights and a text pointer appears in it. When you've finished in one field, you use the tab key to move to the next.

Once you've finished a list, LisaList lets you sort the information on it in a number of different ways. You can sort:

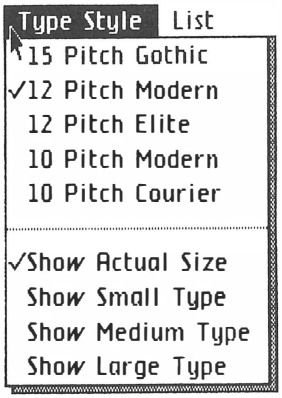
- alphabetically or numerically
- in ascending or descending order
- on any column
- on several different columns at the same time.

You can also search through a list for a particular item, or for all the items of a particular kind. And you can combine search specifications. So you could search for all the accounts in Alaska and Hawaii who owe you more than $5000 and who haven't paid anything for the last three months or more.

LisaList also lets you:

- scroll through a list,
- correct mistakes in it,
- delete rows,
- add and delete columns,
- change column widths,
- move columns around,

Figure 5–7



- hide columns you don't want to appear on a particular report,
- choose between three different type faces and three different sizes,
- make any of them appear in the other two sizes (Figure 5–7), and
- print out the results of all of this.

You can specify as many as a hundred columns in a list, and a row can have as many as 990 characters. Whole lists can contain up to about 600,000 characters—six thousand rows of a hundred characters each, for example.

In other words, LisaList does most things you can think of that relate to the keeping, altering, finding and reorganizing of records.

But for all its power, LisaList can only deal with the past and the present. To deal with the future, you use LisaCalc.

6 Predicting the Future with LisaCalc

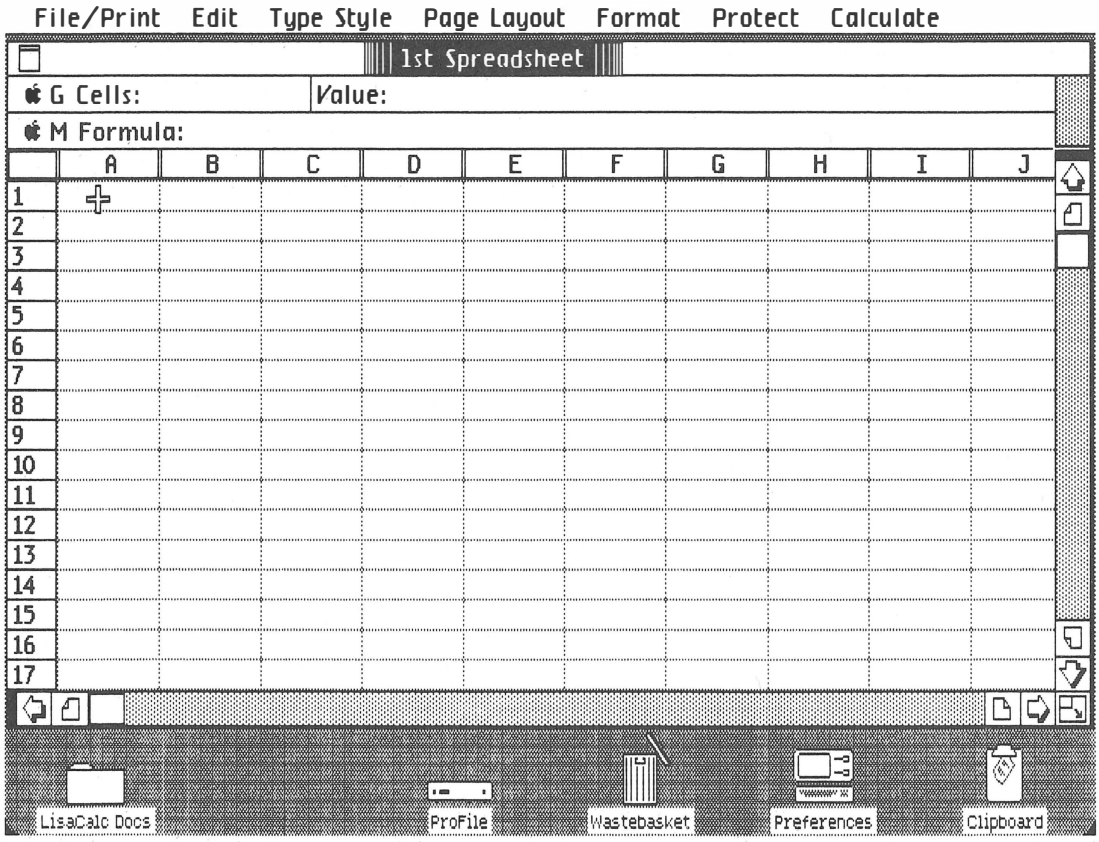
The best-selling personal computer program ever is VisiCalc; it was also the first to sell in really significant numbers. Despite its early popularity, VisiCalc was only available on Apple IIs for quite a while—so you had to buy an Apple II if you wanted to use it. Some people attribute the entire success of the Apple Computer Company to that fact.

In more recent years, VisiCalc has been adapted to run on several different machines and other companies have brought out many, many imitations of it. Sometimes known as VisiClones, almost all of them have "Calc" in their names somewhere.

The proper name for "Calc" programs is **electronic spreadsheets**. They're used for financial (and other sorts of) modeling—predicting the effect of one or more present changes on one or more future conditions. In other words, they let you examine "what if?" possibilities to see the impact of complex alternate scenarios. Huh? Well, it's easier to explain with an example, so let me go right into that.

When you tear off a sheet of LisaCalc Paper and open the document thus created, you get a window that looks like Figure 6–1. The bottom part of this screen shows part of the spreadsheet you're going to be filling in; you can see ten columns (labeled A through J) and seventeen numbered rows. The little boxes at the inter-

Figure 6–1

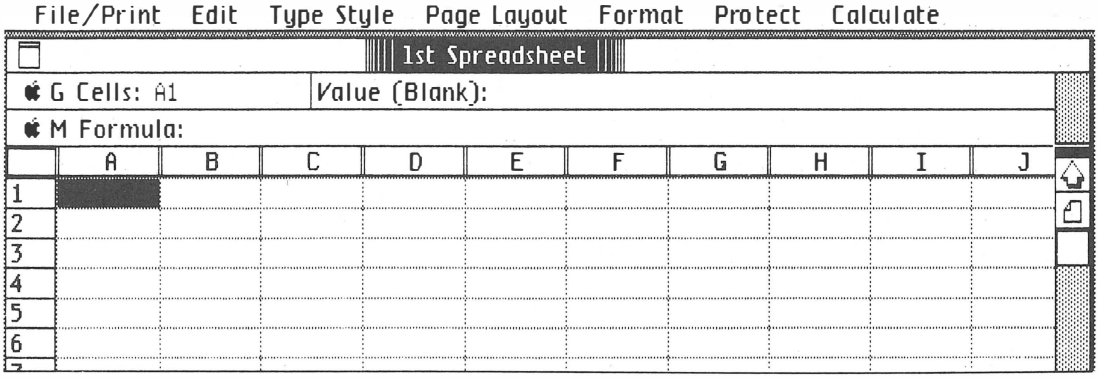


sections of the columns and the rows—called "fields" in LisaList—are called **cells** in LisaCalc.

The top part of the window is called the **status panel**. The area marked "Cells:" indicates the number of the cell that's selected (you select it by moving the pointer to it and clicking the mouse button). In Figure 6–1, the hollow cross-hair pointer (which you doubtless remember from LisaList) is in cell A1. If you click the button while the pointer's there, that cell will highlight and "A1" will appear after "Cells:" in the status panel.

It also works the other way. If you move the pointer to the Cells area, type "A1" and hit the Enter key, cell A1 will highlight. Both procedures produce the same effect, which is shown in Figure 6–2.

Figure 6–2

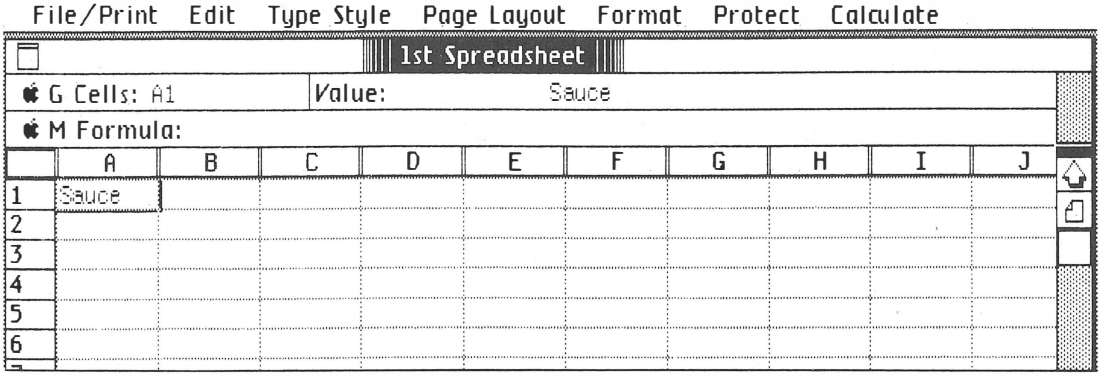


Notice that right before the word "Cells:" there's an Apple symbol followed by the letter G. This tells you that you can get to the Cells area without moving the mouse, by holding down the Apple key and the G key simultaneously.

The next area in the status panel is labeled "Value". A **value** is what you put in a cell. It can be either a number or a label. In Figure 6–2, the word "(Blank)" has appeared after "Value". That's because the selected cell (A1) is blank; it contains neither a label or a number. Let's fix that by putting a label in it.

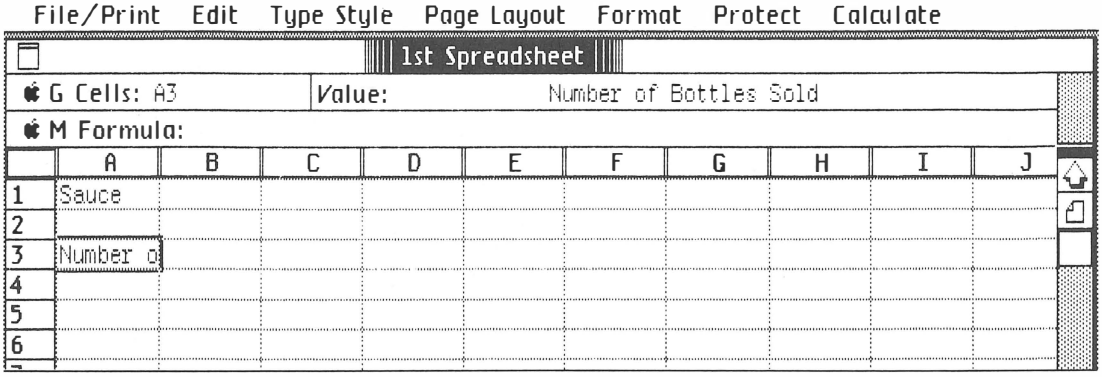
The fact that this is cell A1 suggests what the label should be (Figure 6–3). Notice that it appears both in the cell and after the word "Value:" in the status panel.

Figure 6–3



Now let's go down to cell A3, select it, and type in "Number of Bottles Sold" (Figure 6–4). Cell A3 isn't wide enough to accommodate that label, so it just shows as much as it can. But you can see the whole label in the Value area.

Figure 6–4



Let's widen column A so it can accommodate this label. You do that by putting the pointer on the line between columns A and B, holding down the mouse button and moving it as far right as you want (Figure 6–5). Notice the double arrow that appears between columns A and B to remind you that you're widening (or narrowing) a column—although if you forget so quickly, you need a neurologist, not a double arrow.

Figure 6–5

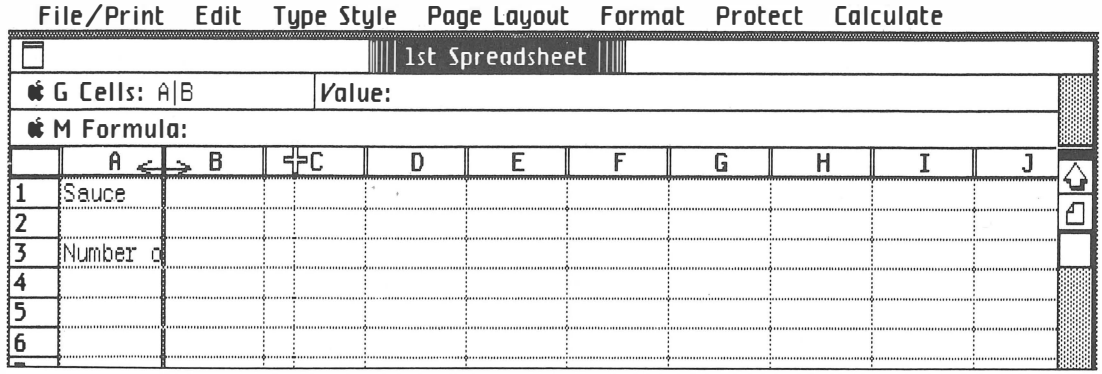


Figure 6–6 shows how the window looks when you release the mouse button. All the other columns have shifted right to accommodate the new, wider column A. Figure 6–6 also shows that you may have to experiment to get the column the right width for the labels you want. The easiest way to do that is to make the column wider than you could possibly need it to be, then narrow it so it just contains the longest label.

Figure 6–7 shows a typical spreadsheet, partly filled in. Notice that the retail price of our hypothetical sauce

Figure 6–6

File/Print Edit Type Style Page Layout Format Protect Calculate

1st Spreadsheet

G Cells: A|B Value:

M Formula:

	A	B	C	D	E	F	G	H
1	Sauce							
2								
3	Number of Bottles S							
4								

Figure 6–7

File/Print Edit Type Style Page Layout Format Protect Calculate

1st Spreadsheet

G Cells: B7 Value (Blank):

M Formula:

	A	B	C	D	E	F
1	Sauce	1st quarter	2nd quarter	3rd quarter	4th quarter	Year total
2						
3	Number of bottles sold	14,000	11,500	16,250	22,750	
4	Sale price per bottle	$ 1.73	$ 1.73	$ 1.97	$ 1.97	
5	Cost per bottle	$ 0.63	$ 0.68	$ 0.68	$ 0.71	
6						
7	Gross sales revenues					
8	Cost of goods sold					
9	Overhead					
10						
11	Profit					
12						

rose in the third quarter and the cost of producing each bottle rose in the second and again in the fourth quarter.

So far, you've seen that you can enter either labels or numbers in a cell. But if that were all electronic spreadsheets could do, they would be very dumb programs indeed. The key to the power of this software lies in the fact that you can also enter a **formula** in a cell.

For example, the amount in cell B7 (gross sales revenues) is always going to equal the amount in cell B3 (number of bottles sold) times the amount in cell B4 (sales price per bottle). So, with cell B7 selected, you go up to the "Formula:" area of the status panel, click the button, type "b3*b4", and hit the Enter key. (It doesn't matter if you capitalize the letter part of the cell name; LisaCalc understands it either way and translates lowercase letters into caps for you. * is widely used in computer programs to indicate multiplication.)

The instant you hit the Enter key, LisaCalc does the calculation (in this case, 14,000 × $1.73) and puts the result into the cell, as it did in Figure 6–8. (LisaCalc displays the raw number, just the way you typed it in,

Figure 6–8

File/Print Edit Type Style Page Layout Format Protect Calculate

1st Spreadsheet

G Cells: B7 | Value (Number): 24220

M Formula: B3*B4

	A	B	C	D	E	F
1	Sauce	1st quarter	2nd quarter	3rd quarter	4th quarter	Year total
2						
3	Number of bottles sold	14,000	11,500	16,250	22,750	
4	Sale price per bottle	$ 1.73	$ 1.73	$ 1.97	$ 1.97	
5	Cost per bottle	$ 0.63	$ 0.68	$ 0.68	$ 0.71	
6						
7	Gross sales revenues	24220				
8	Cost of goods sold					
9	Overhead					
10						
11	Profit					
12						

in the selected cell; when you select another cell, it inserts dollar signs, commas and whatever else you've specified.)

Most of the other cells in this spreadsheet require formulas—the exceptions are cells B9, C9, D9 and E9, which require numbers, and cells F4 and F5, which require labels (either a dash or "NA" for "not applicable"). For example, the formula for cell F3 is b3 + c3 + d3 + e3; the formula for B11 is b7 − b8 − b9.

Figure 6–9 shows the spreadsheet completely filled in. There are a number of conclusions you can draw from the information in it. But the really sophisticated applications of LisaCalc come when you ask "what if?" questions. Let's say you're considering the advisability of raising the price per bottle to $2.35, and that you figure this would reduce the number of bottles sold by 25%.

To see the effect of this change on your profits, you'd change the numbers in cells B3, C3, D3, E3, B4, C4, D4 and E4—figuring that next year will be pretty much the same as this year in terms of seasonal variations in sales, overhead and costs. (I know I'm making

Figure 6–9

File/Print Edit Type Style Page Layout Format Protect Calculate

1st Spreadsheet

G Cells: | Value (Blank):

M Formula:

	A	B	C	D	E	F
1	Sauce	1st quarter	2nd quarter	3rd quarter	4th quarter	Year total
2						
3	Number of bottles sold	14,000	11,500	16,250	22,750	64,500
4	Sale price per bottle	$ 1.73	$ 1.73	$ 1.97	$ 1.97	--
5	Cost per bottle	$ 0.63	$ 0.68	$ 0.68	$ 0.71	--
6						
7	Gross sales revenues	$ 24,220.00	$19,895.00	$32,012.50	$ 44,817.50	$ 120,945.00
8	Cost of goods sold	$ 8,820.00	$ 7,820.00	$11,050.00	$ 16,152.50	$ 43,842.50
9	Overhead	$ 10,000.00	$ 9,500.00	$11,500.00	$ 12,500.00	$ 43,500.00
10						
11	Profit	$ 5,400.00	$ 2,575.00	$ 9,462.50	$ 16,165.00	$ 33,602.50

a number of unwarranted assumptions, but this is just an example. Give me a break, OK?)

LisaCalc automatically recalculates all the other cells affected by these changes (namely F3, B7, C7, D7, E7, F7, B8, C8, D8, E8, F8, B11, C11, D11, E11 and F11). Figure 6–10 shows the results. Gross sales revenues are down, but profits are up.

Figure 6–10

File/Print Edit Type Style Page Layout Format Protect Calculate

1st Spreadsheet

G Cells: | Value (Blank):

M Formula:

	A	B	C	D	E	F
1	Sauce	1st quarter	2nd quarter	3rd quarter	4th quarter	Year total
2						
3	Number of bottles sold	10,500	8,625	12,188	17,063	48,376
4	Sale price per bottle	$ 2.35	$ 2.35	$ 2.35	$ 2.35	--
5	Cost per bottle	$ 0.63	$ 0.68	$ 0.68	$ 0.71	--
6						
7	Gross sales revenues	$ 24,675.00	$20,268.75	$28,641.80	$ 40,098.05	$ 113,683.60
8	Cost of goods sold	$ 6,615.00	$ 5,865.00	$ 8,287.84	$ 12,114.73	$ 32,882.57
9	Overhead	$ 10,000.00	$ 9,500.00	$11,500.00	$ 12,500.00	$ 43,500.00
10						
11	Profit	$ 8,060.00	$ 4,903.75	$ 8,853.96	$ 15,483.32	$ 37,301.03
12						

This scenario drives your president berserk with greed and he suggests raising the price to *$8* a bottle—conceding that this will reduce sales to 10% of their current levels. Figure 6–11 shows why this is not a good idea (parentheses indicate negative values, of course—not *these*, the ones in the spreadsheet).

Figure 6–11

File/Print Edit Type Style Page Layout Format Protect Calculate

1st Spreadsheet

G Cells: Value:

M Formula:

	A	B	C	D	E	F
1	Sauce	1st quarter	2nd quarter	3rd quarter	4th quart r	Year total
2						
3	Number of bottles sold	140	115	163	228	646
4	Sale price per bottle	$ 8.00	$ 8.00	$ 8.00	$ 8.00	--
5	Cost per bottle	$ 0.63	$ 0.68	$ 0.68	$ 0.71	--
6						
7	Gross sales revenues	$ 1,120.00	$ 920.00	$ 1,304.00	$ 1,824.00	$ 5,168.00
8	Cost of goods sold	$ 88.20	$ 78.20	$ 110.84	$ 161.88	$ 439.12
9	Overhead	$ 10,000.00	$ 9,500.00	$ 11,500.00	$ 12,500.00	$ 43,500.00
10						
11	Profit	$ (8,968.20)	$(8,658.20)	$(10,306.84)	$(10,837.88)	$(38,771.12

From this somewhat simple-minded example, you can get an idea of the kind of things LisaCalc is good for.

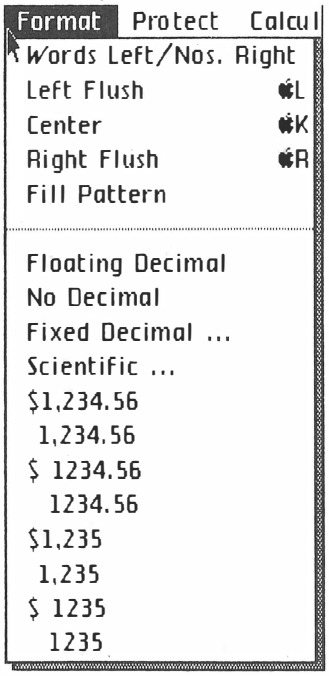
A LisaCalc spreadsheet can be enormous—up to 255 rows by 255 columns, for a total of more than 65,000 cells. Its calculations are figured to fifteen digits—which is more precision than you're likely to need.

LisaCalc also lets you alter how a spreadsheet looks. Like LisaList, it gives you a choice of five common typefaces, and lets you enlarge and reduce them as well (its **Type Style menu** is identical to LisaList's, shown in Figure 5–7).

The **Format menu** (Figure 6–12) provides other options. You can have the contents of a cell flush right, flush left or centered, or you can have the words flush left and the numbers flush right. You can have the contents repeat until they fill the cell (useful for making lines—of stars, say—across the spreadsheet).

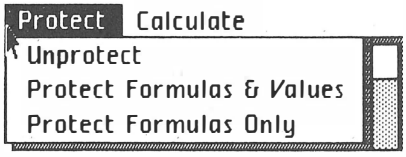
Finally, you can format numbers in many different styles—with and without dollar signs, decimal points, commas, etc. As with LisaList, LisaCalc will automatically convert the raw numbers you type into the format you've selected.

Figure 6–12



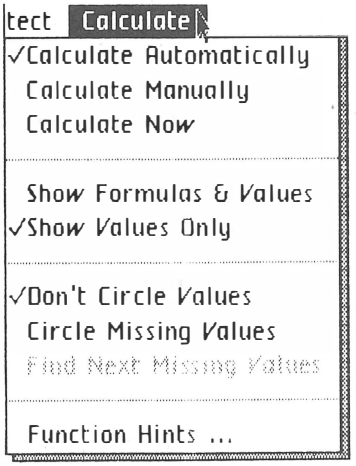
The **Protect menu** (Figure 6–13) lets you prevent certain cells, or all cells, from being accidentally changed—unless and until you unprotect them.

Figure 6–13



The **Calculate menu** (Figure 6–14) gives you a slew of other options. For example, when you change a value in a cell, LisaCalc's default is to automatically change all the other values affected by that change. But if you select **Calculate Manually**, LisaCalc holds off on recalculating the other cells until you tell it to (which you do by selecting **Calculate Now**).

Figure 6–14



Show Formulas & Values makes the cells bigger so each can display the formula it uses to compute the value in it, as well as the value itself. Figure 6–15 shows what that looks like. Quite a mess, isn't it? Well, it's useful when you want to be reminded what LisaCalc is up to and how it's coming to its conclusions.

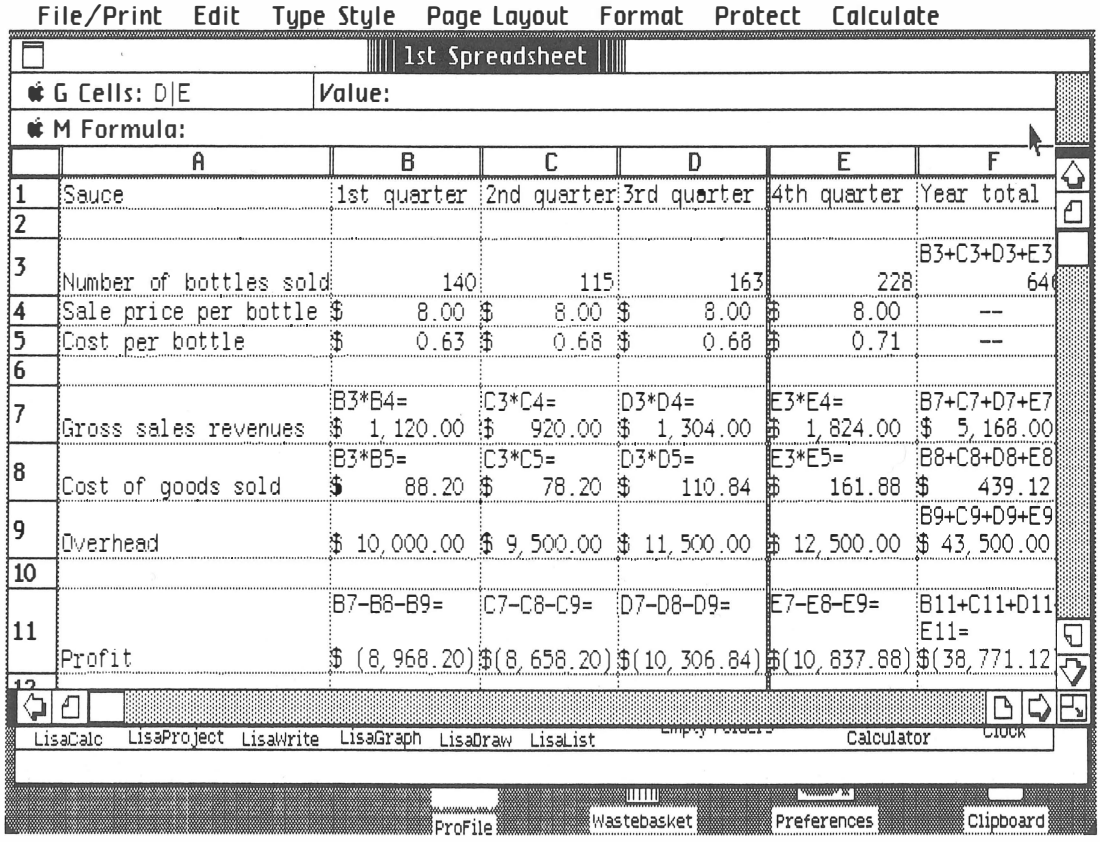
If you want LisaCalc to tell you when a cell's value is missing or incorrectly entered, select **Circle Missing Values** from the Calculate menu.

Function Hints . . . displays an extensive on-screen help menu that lists all the various functions you can use in a LisaCalc formula. They include:

- basics like averages and squares,
- more sophisticated ones like trigonometric and logarithmic functions, and financial functions like NPV (net present value), annuity and compound interest,
- relatively abstruse ones like "logical and," "logical or" and "logical not."

LisaCalc tables can be pasted into LisaWrite or LisaGraph, where they can be jazzed up (it's sort of like taking your car to the paint shop after all the dents are out). You already know about LisaWrite, so I'll use the next chapter to tell you about LisaGraph.

Figure 6–15



	A	B	C	D	E	F
1	Sauce	1st quarter	2nd quarter	3rd quarter	4th quarter	Year total
2						
3	Number of bottles sold	140	115	163	228	B3+C3+D3+E3 646
4	Sale price per bottle	$ 8.00	$ 8.00	$ 8.00	$ 8.00	--
5	Cost per bottle	$ 0.63	$ 0.68	$ 0.68	$ 0.71	--
6						
7	Gross sales revenues	B3*B4= $ 1,120.00	C3*C4= $ 920.00	D3*D4= $ 1,304.00	E3*E4= $ 1,824.00	B7+C7+D7+E7 $ 5,168.00
8	Cost of goods sold	B3*B5= $ 88.20	C3*C5= $ 78.20	D3*D5= $ 110.84	E3*E5= $ 161.88	B8+C8+D8+E8 $ 439.12
9	Overhead	$ 10,000.00	$ 9,500.00	$ 11,500.00	$ 12,500.00	B9+C9+D9+E9 $ 43,500.00
10						
11	Profit	B7-B8-B9= $ (8,968.20)	C7-C8-C9= $(8,658.20)	D7-D8-D9= $(10,306.84)	E7-E8-E9= $(10,837.88)	B11+C11+D11+E11= $(38,771.12

7 Making Business Charts with LisaGraph

This is one of my favorite Lisa programs. It takes raw data and turns it into any of five kinds of graphs—bar, line, mixed bar/line, pie and scatter. Because you can switch from one kind of chart to another simply by selecting an item from a menu, you can see which of several different charts makes your point in the clearest and most effective way. LisaGraph makes information easier to understand—not only for the people you show the charts to, but also for yourself.

When you tear off a sheet of LisaGraph Paper and open the document thus created, you get a window that looks like Figure 7–1. The spreadsheet-like data table on the left is where you enter your information—either directly or by pasting a LisaCalc table in there. As in LisaCalc, the little boxes in this data table are called **cells**.

Let's say you want to chart your sales for the last three years. First you put the years in column A. Since the hollow cross-hair pointer is in cell A1, all you have to do is click the mouse button and start typing. When you enter items in column A, LisaGraph automatically enters them on the **x** (horizontal) **axis** (Figure 7–2).

Figure 7–1

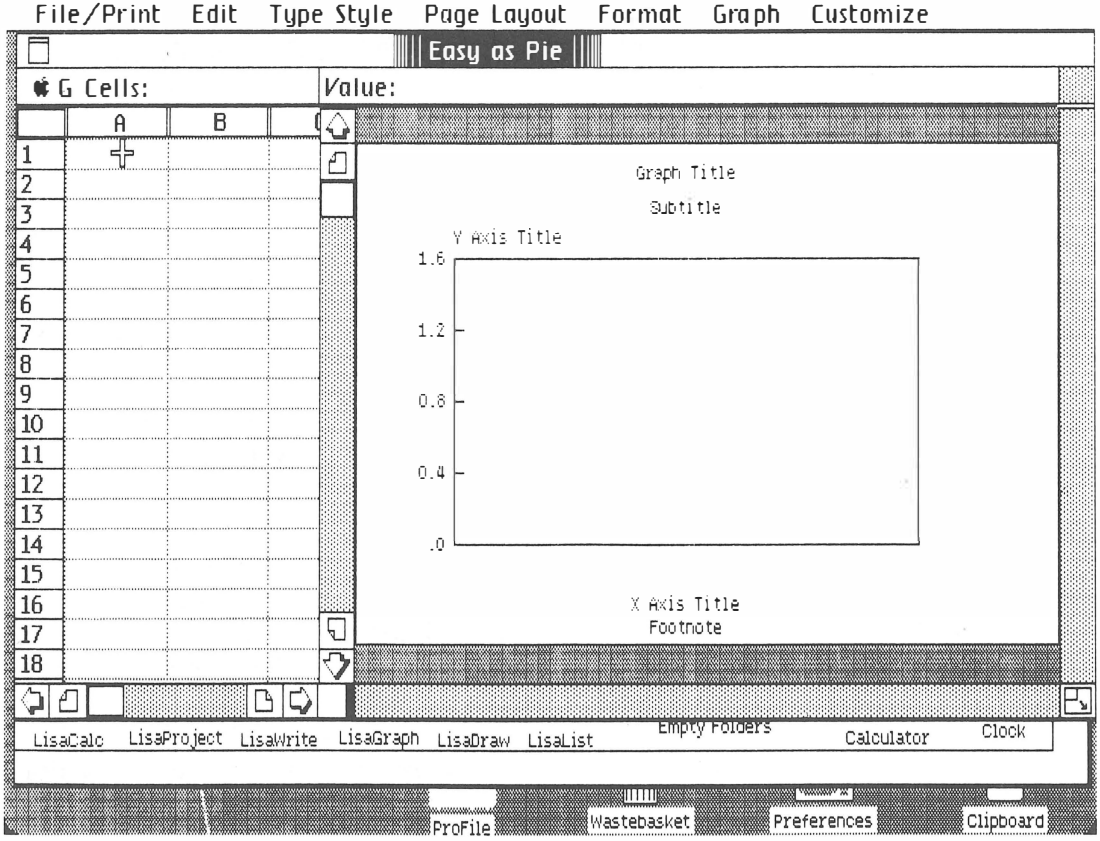
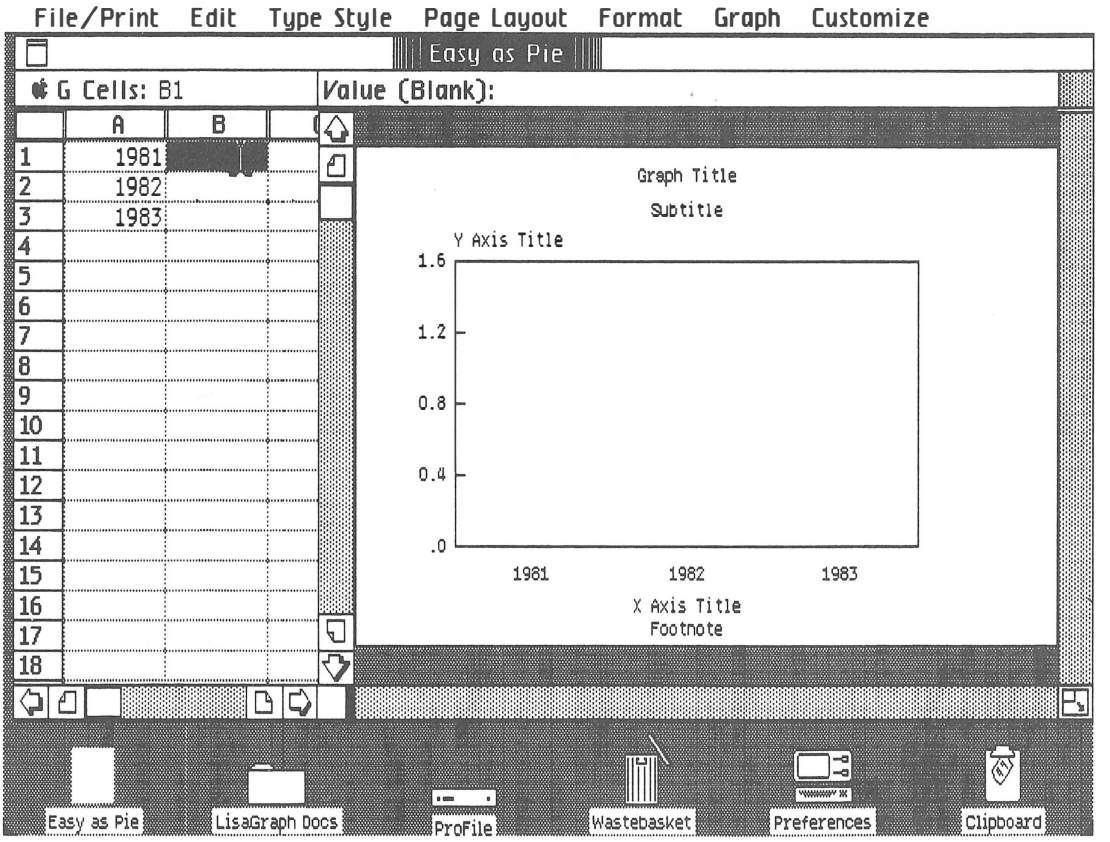

File/Print Edit Type Style Page Layout Format Graph Customize
Easy as Pie
G Cells:
Value:
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
Graph Title
Subtitle
Y Axis Title
1.6
1.2
0.8
0.4
.0
X Axis Title
Footnote
LisaCalc
LisaProject
LisaWrite
LisaGraph
LisaDraw
LisaList
Empty Folders
Calculator
Clock
ProFile
Wastebasket
Preferences
Clipboard

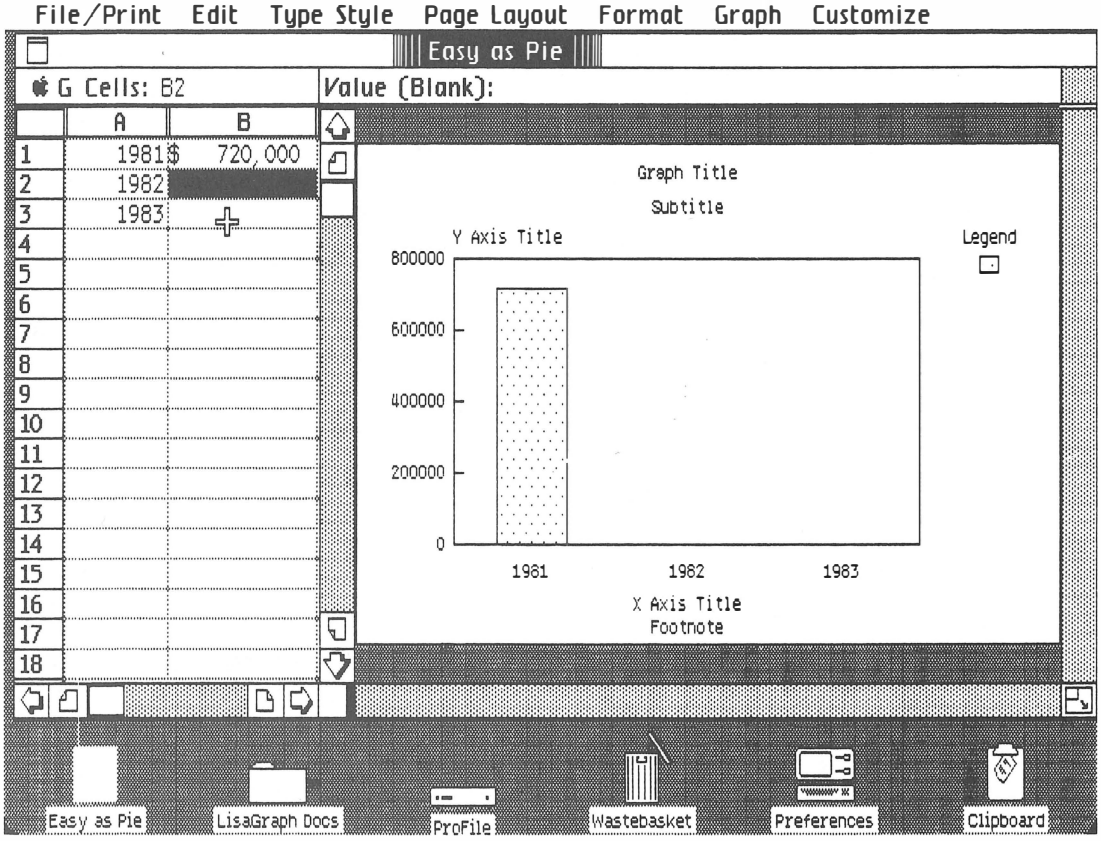
Figure 7–2



The **Cells:** and **Values:** areas above the data table work just the way they do in LisaCalc—they display the currently selected cell and what you're entering into it. (By the time I'd printed out Figure 7–2, I'd moved on to cell B1, which is blank, but when cells A1, A2 and A3 were selected, those numbers appeared in the Cells area and 1981, 1982 and 1983 appeared in the Value area.)

In Figure 7–3, I've widened column B and entered the first sales figure—$720,000 for 1981 (you can assume three zeros have been dropped from the end of it if you like to think big). LisaGraph not only immediately creates a bar that symbolizes that amount, it also

Figure 7–3



changes the values on the **y** (vertical) **axis** to adjust to it.

In Figure 7–4, I've entered the sales figures for the other two years and LisaGraph has created bars for them too. Since the sales figure for 1983—$930,000—would be off the chart using the y-axis values from Figure 7–3, LisaGraph also changes them to accommodate this new, larger number. (You can also alter the y-axis values yourself.)

Now, with almost no effort, I've created a bar graph that presents the relevant information. But maybe some other kind of graph would tell the story more dramatically. So I go to the **Graph menu** (Figure 7–5) and ask

Figure 7–4

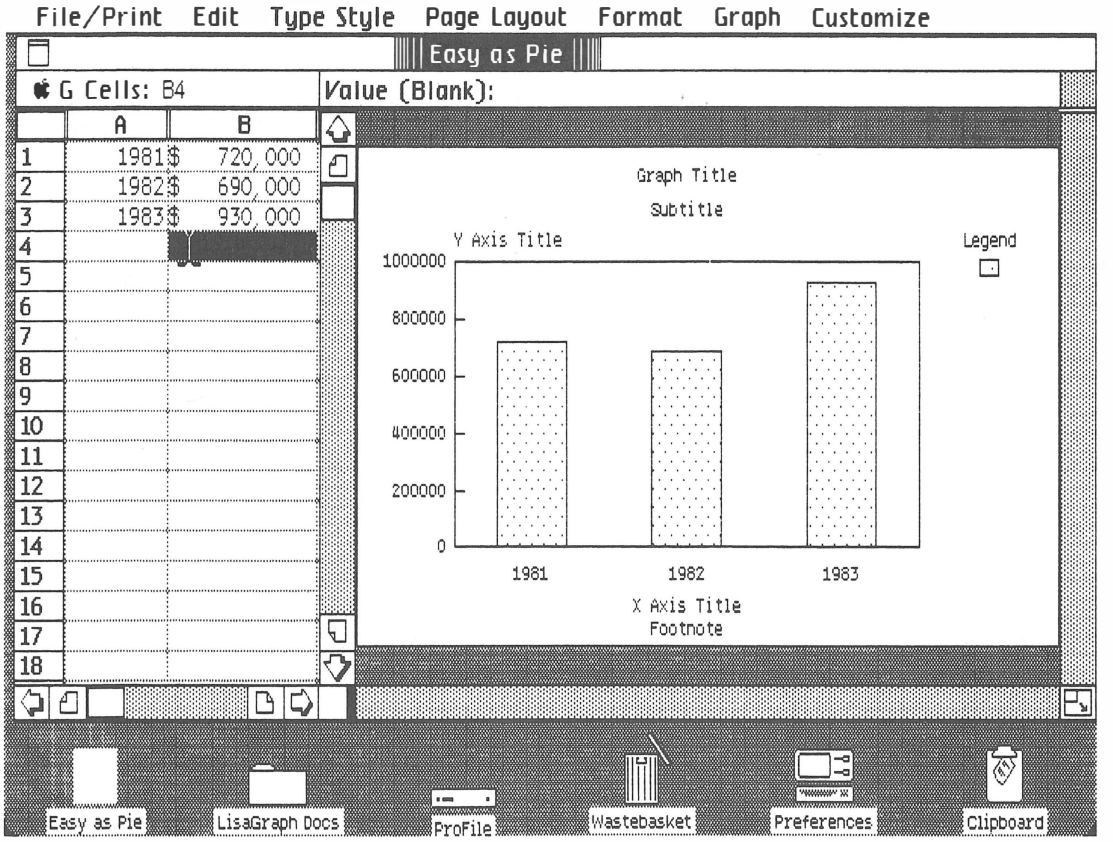


Figure 7–5

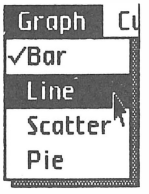


Figure 7–6

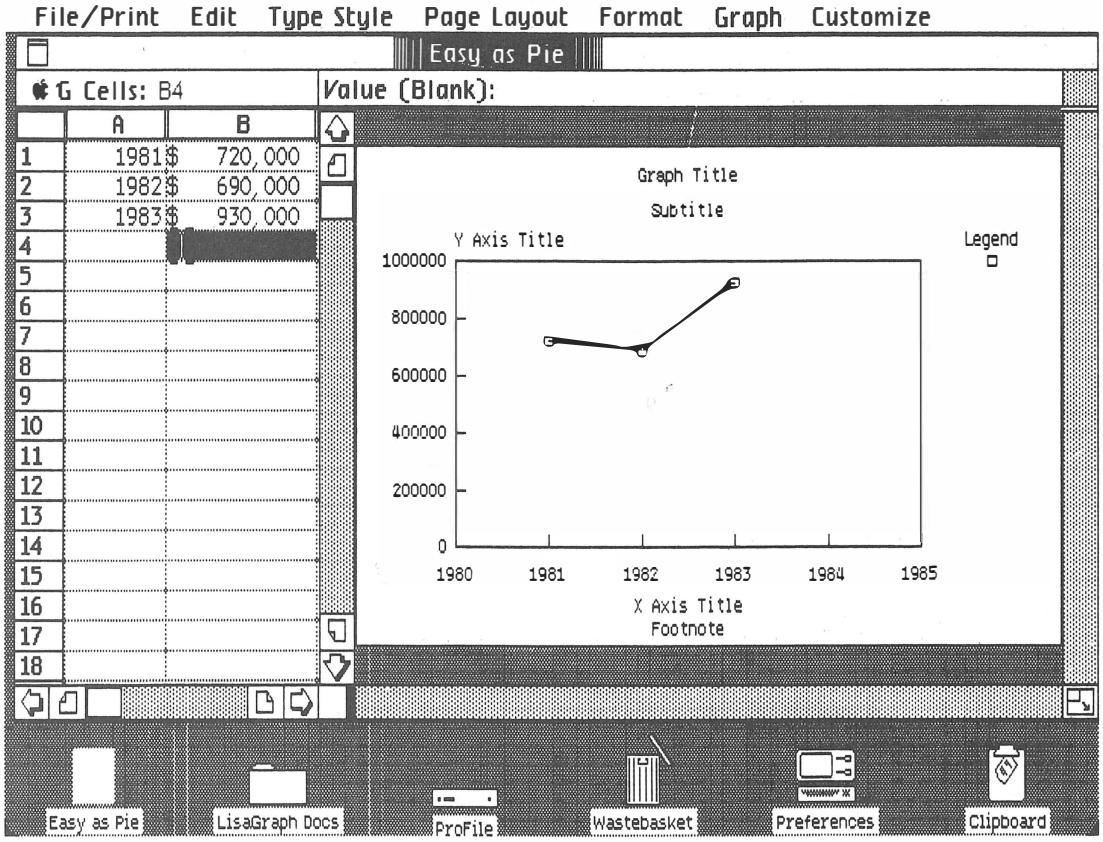
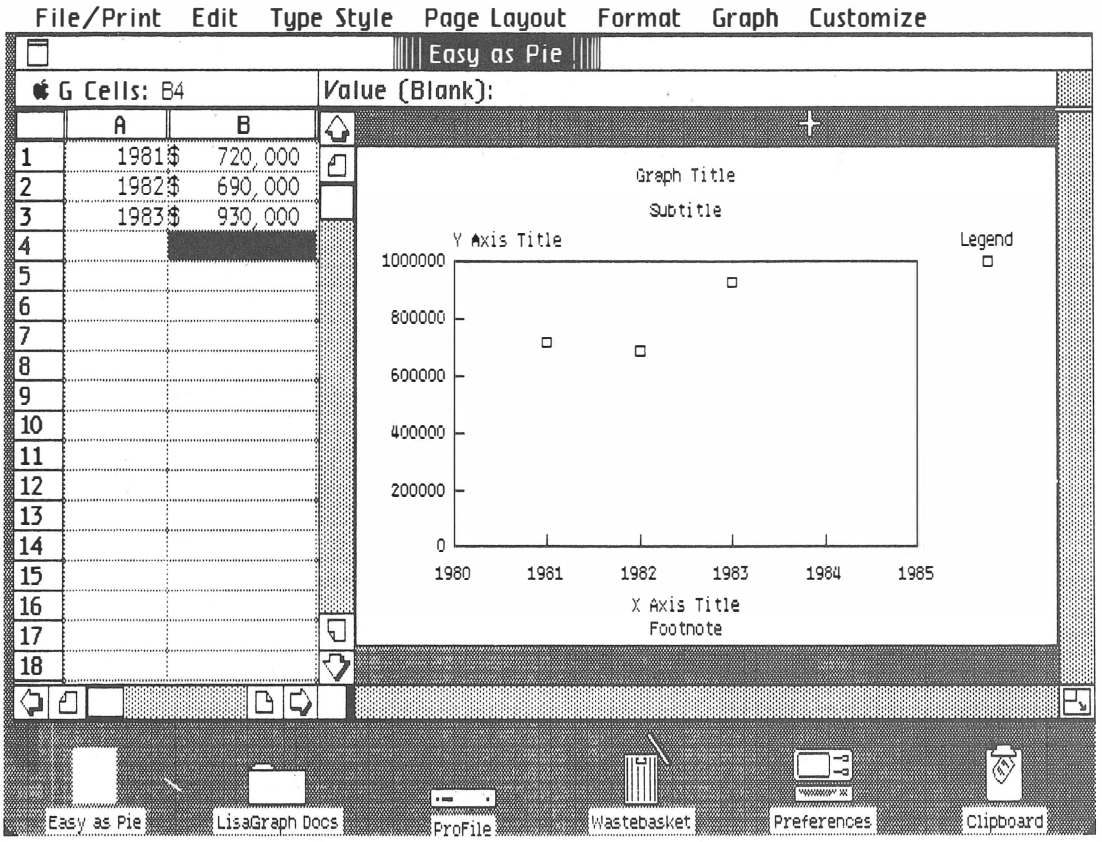

File/Print Edit Type Style Page Layout Format Graph Customize
Easy as Pie
Cells: B4
Value (Blank):
A
B
1 1981 $ 720,000
2 1982 $ 690,000
3 1983 $ 930,000
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
Graph Title
Subtitle
Y Axis Title
Legend
1000000
800000
600000
400000
200000
0
1980
1981
1982
1983
1984
1985
X Axis Title
Footnote
Easy as Pie
LisaGraph Docs
ProFile
Wastebasket
Preferences
Clipboard

Figure 7–7



for a line graph (shown in Figure 7–6). Notice that LisaGraph adds the years 1980, 1984 and 1985 to the x axis so the line will float, rather than being flush against each edge of the chart area.

It's just as simple to get a scattergram (Figure 7–7) or a pie chart (Figure 7–8). LisaGraph drops the extra years when there's no need for them anymore, as in the pie chart.

Figure 7–8

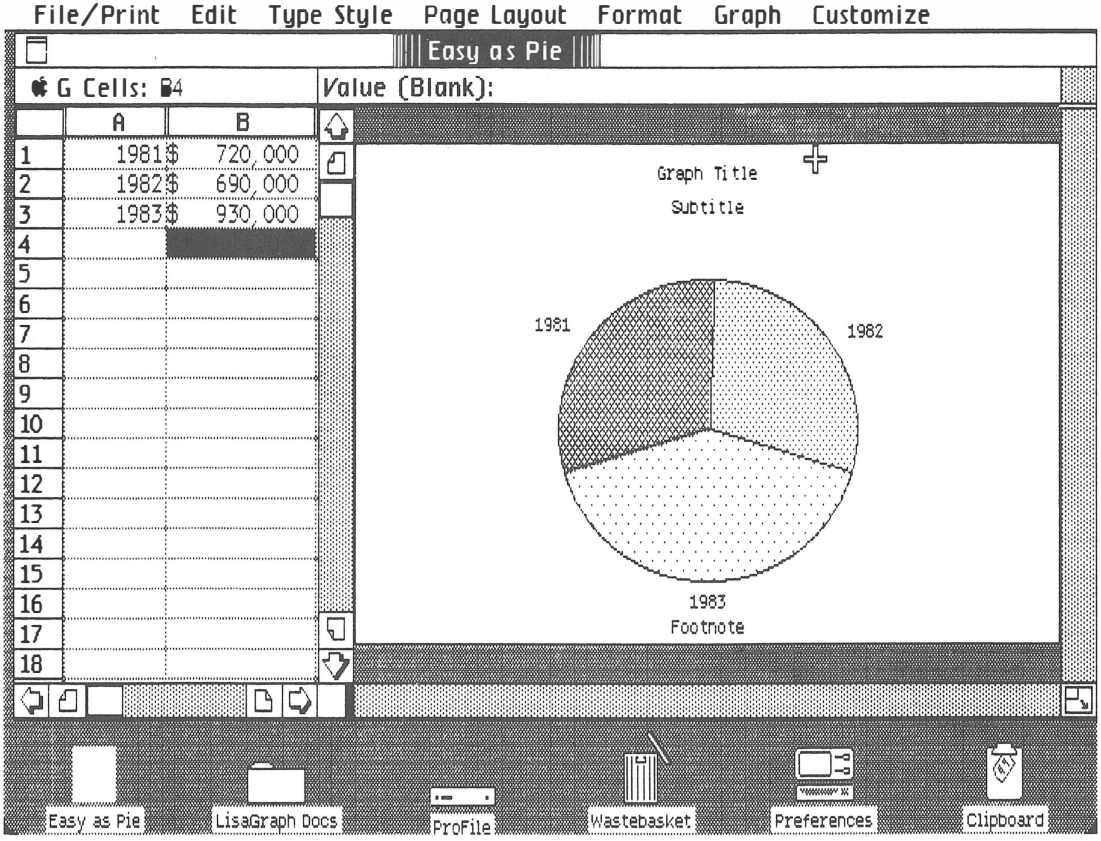
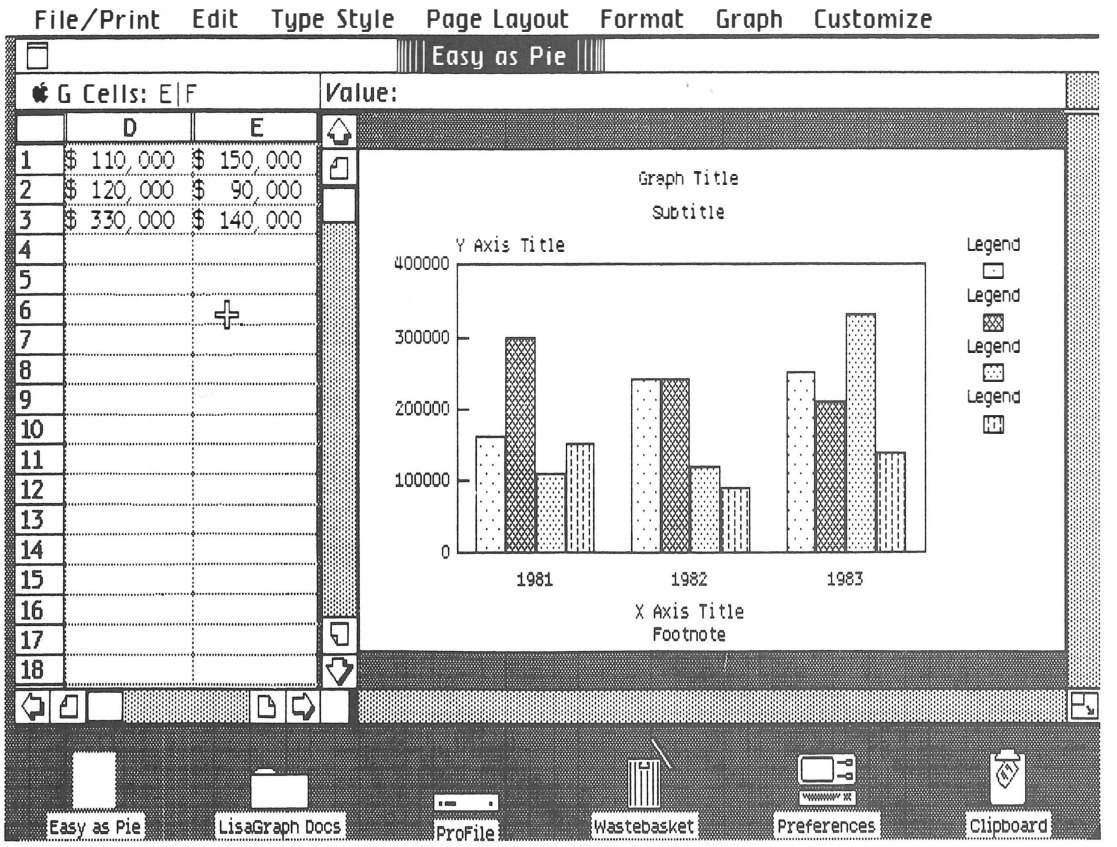

File/Print
Edit
Type Style
Page Layout
Format
Graph
Customize
Easy as Pie
G Cells: B4
Value (Blank):
A
B
1 1981 $ 720,000
2 1982 $ 690,000
3 1983 $ 930,000
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
Graph Title
Subtitle
1981
1982
1983
Footnote
Easy as Pie
LisaGraph Docs
ProFile
Wastebasket
Preferences
Clipboard

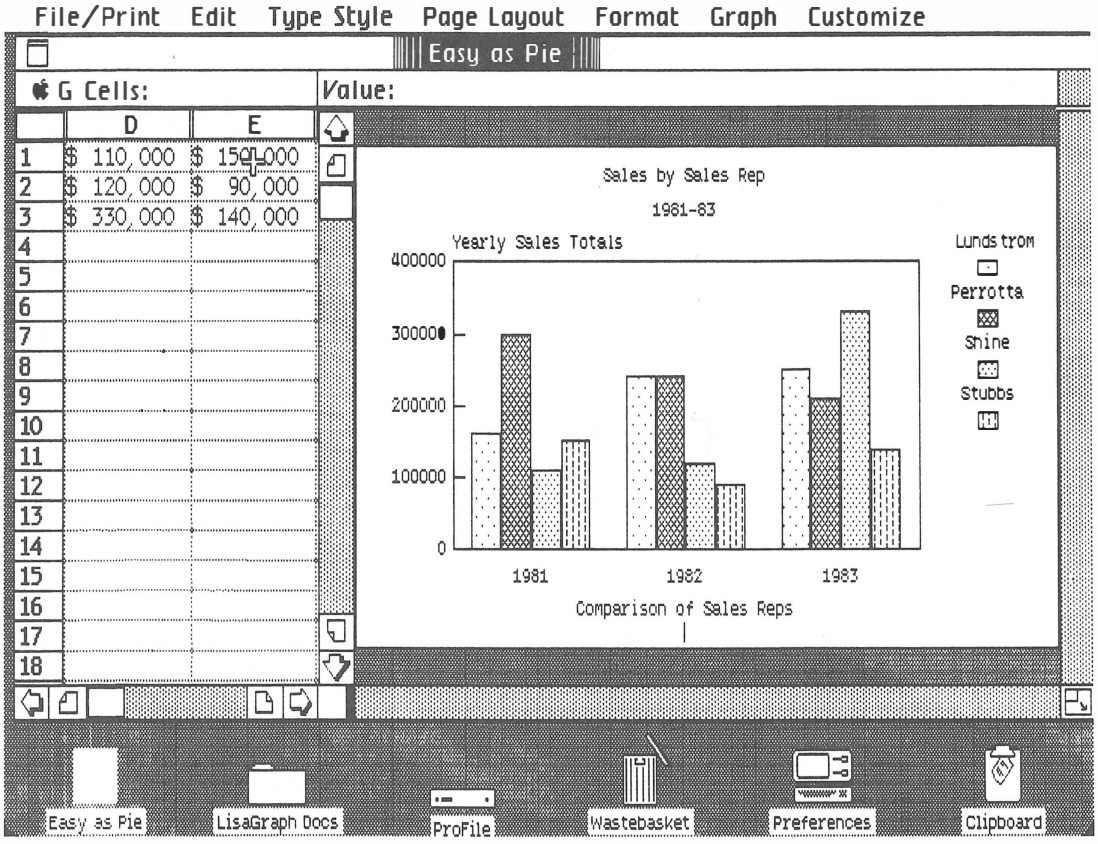
Figure 7–9



Producing a mixed line/bar chart is only slightly more complicated. But to do it, you need more than one set of figures on the y axis (since you obviously can't mix just one thing). So let's assume you have four sales reps. First, you list their individual sales figures in columns B, C, D and E, respectively. (The data table scrolls over to accommodate these new values; you can scroll it back if you want.)

Figure 7–9 shows the result. Not only has LisaGraph made bars for each sales rep, it's assigned a different pattern to each bar. It's also put a little box of each pattern off to the right, labeled "Legend". In the unlikely event that all four of your sales reps are named Legend,

Figure 7–10

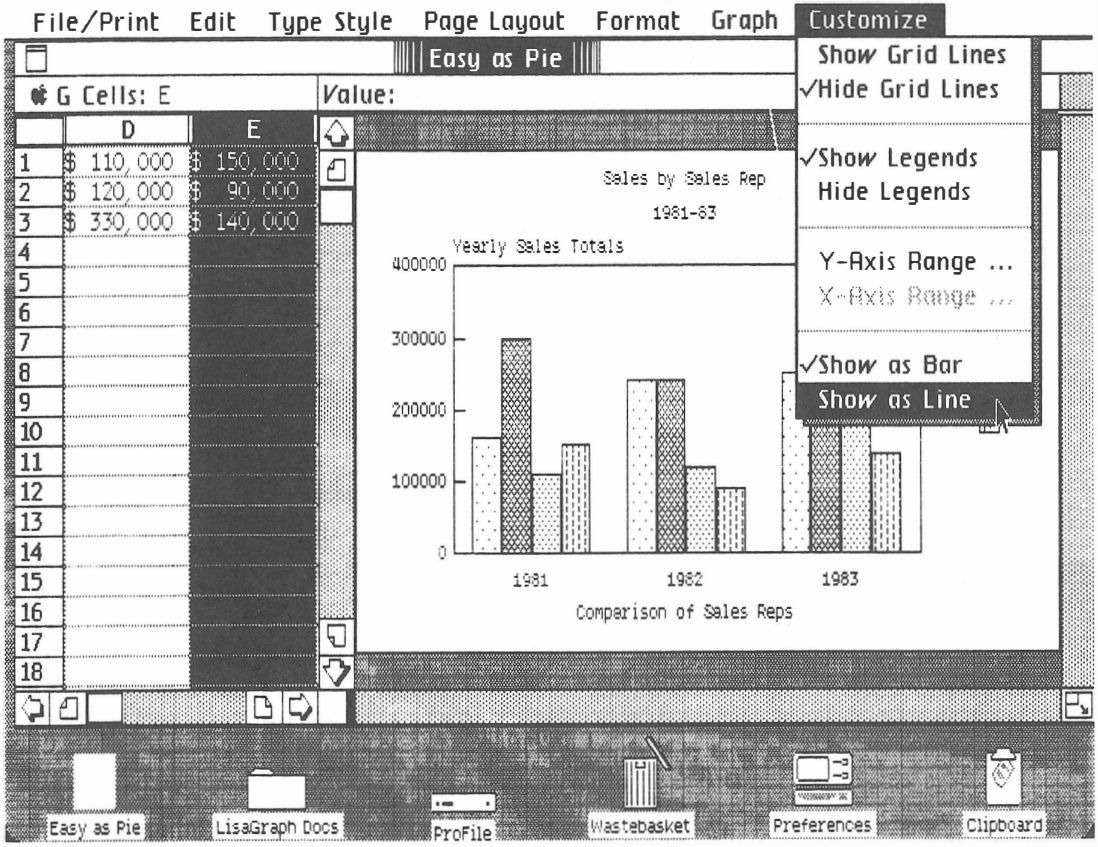


there's nothing more you need to do. If not, you'll want to change these labels.

To do that, you just move the pointer to a label, which turns it into a text pointer. Then you click the button to deposit an insertion point and type in the new name, as I've done in Figure 7–10. (While I was at it, I changed the other titles and eliminated the footnote. You can also insert your own titles anywhere in the graph part of the window.)

Now we're ready for mixed bar and line graphs. To display one or more of the sales reps' records as a line instead of a bar, you first select that rep's column in the data table (by putting the pointer in the letter

Figure 7–11

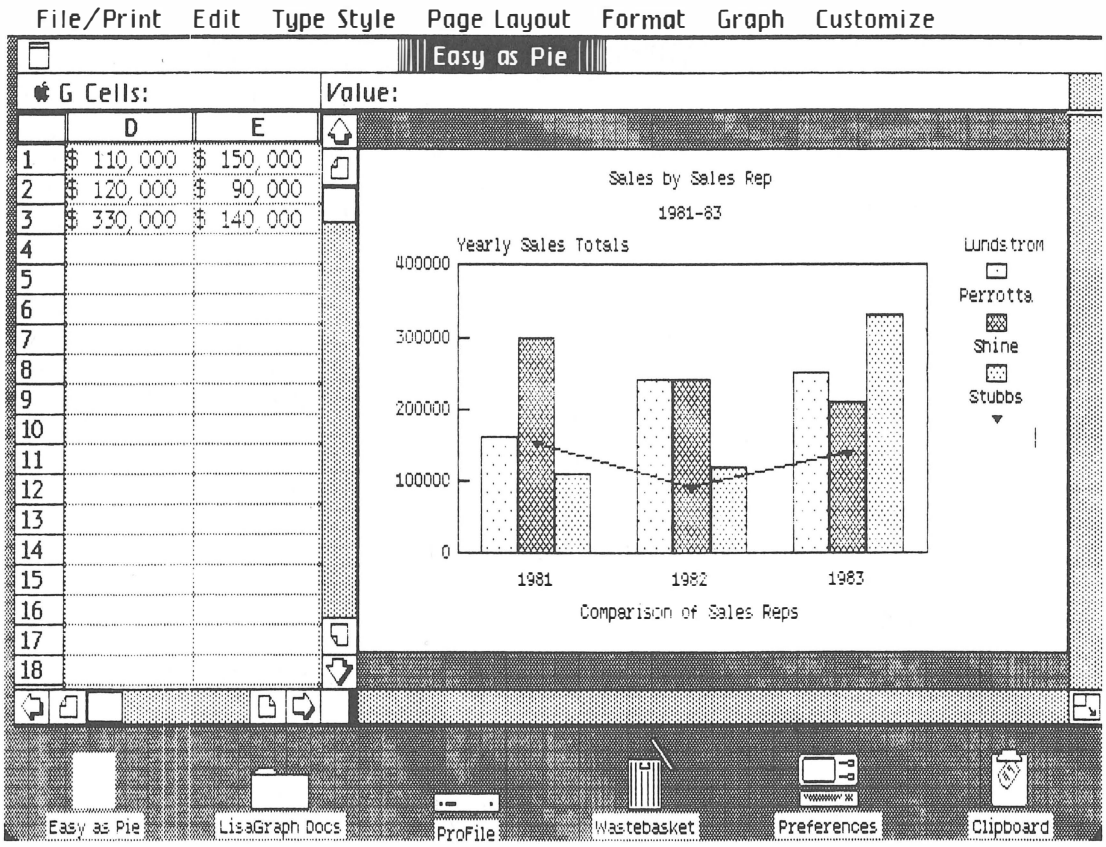


cell at the head of that column, as I've done for column E in Figure 7–11). Then you select **Show as Line** from the **Customize menu**.

This produces Figure 7–12, with Stubbs' sales shown as a line superimposed on the bars representing Lundstrom's, Perrotta's and Shine's. You can change as many bars as you want to lines, even to the point of converting the bar chart to a line chart piece by piece (although this is certainly the hard way to do it).

Figure 7–13 shows everybody's sales but Lundstrom's converted to lines. Note how LisaGraph, always thinking ahead, has assigned a different symbol to each

Figure 7–12



line—an up-pointing triangle for Perrotta, a diamond for Shine and a down-pointing triangle for Stubbs.

This is just a fraction of the complexity LisaGraph can handle. You can have up to eight sets of data, instead of just the four shown here. Negative as well as positive values are permitted. The columns run all the way up to IU (i.e., A to Z, then AA to AZ, BA to BZ, etc.), allowing you to compare up to 255 different values. Put this all together and it means that LisaGraph can display more than two thousand separate data points.

LisaGraph lets you change the size and shape of a graph when you print it out, by using the **Page Layout menu** (Figure 7–14). The half-page (horizontal) format

Figure 7–13

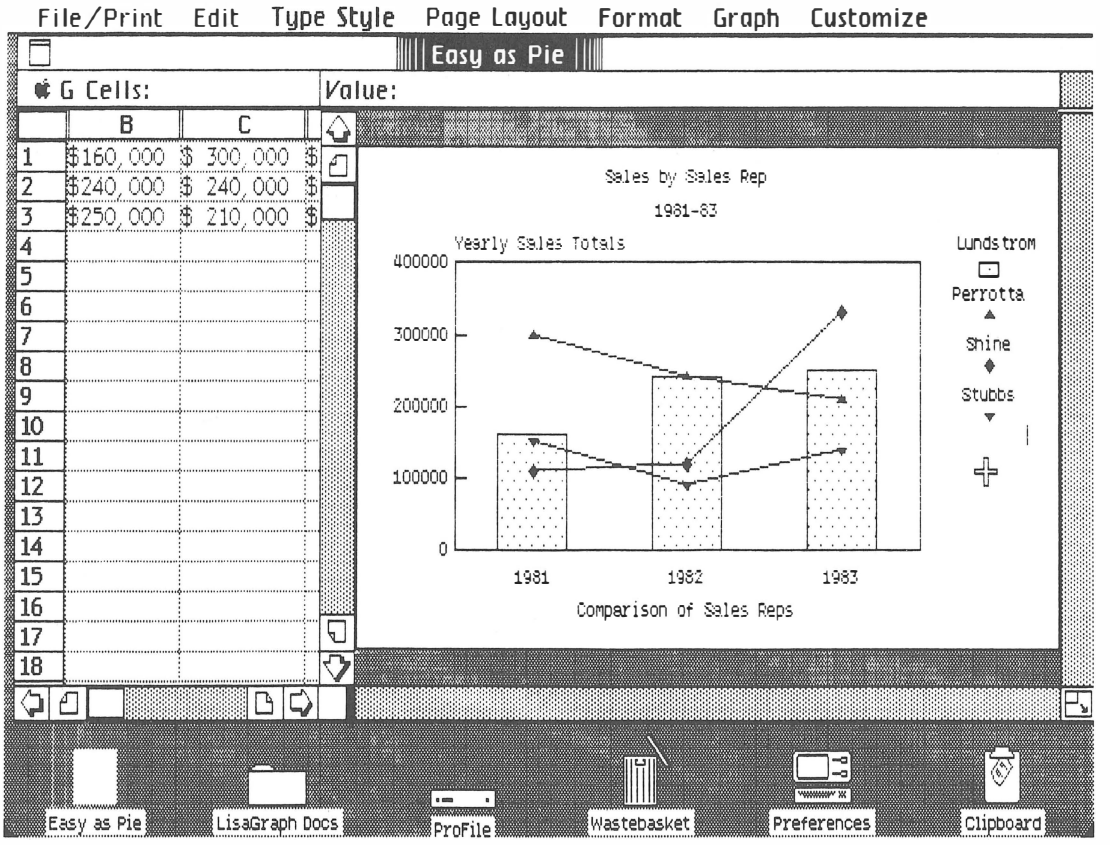


Figure 7–14

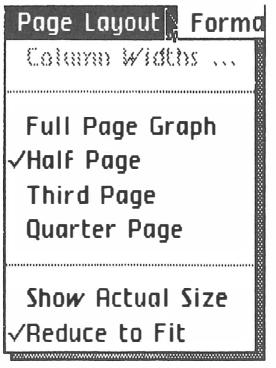
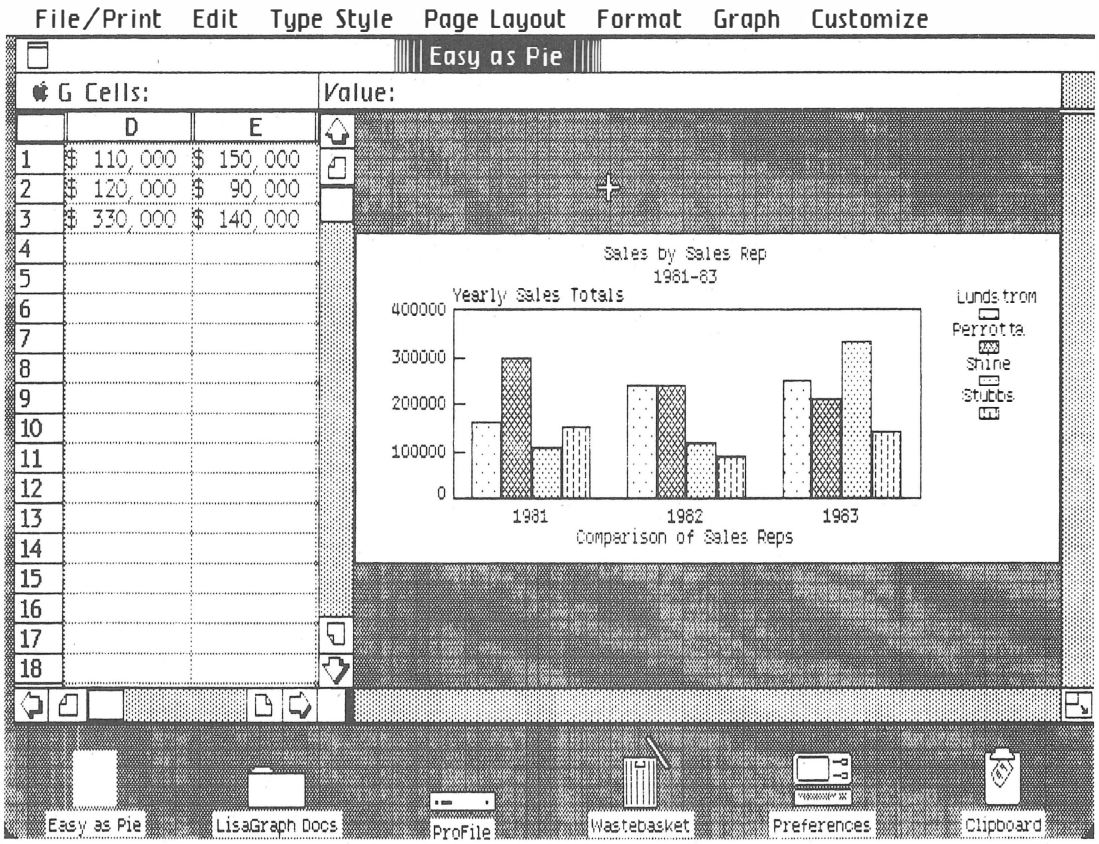


Figure 7–15



is standard and that's what you've been seeing so far. The third-page format is also horizontal (Figure 7–15), but the quarter-page and the full-page formats are vertical. (By the way, you can also print out the data table itself, as well as the graph.)

LisaGraph's default is to reduce the chart so all of it will fit in the graph area in the window, but you can ask to see it the actual size it will appear on a sheet of paper. In Figure 7–16, I've asked for a full-page chart actual size. Since you now need to scroll to see all of the graph, scroll bars appear on the graph section of the window (as you may have noticed, only the data table section had scroll bars up till now).

Figure 7–16

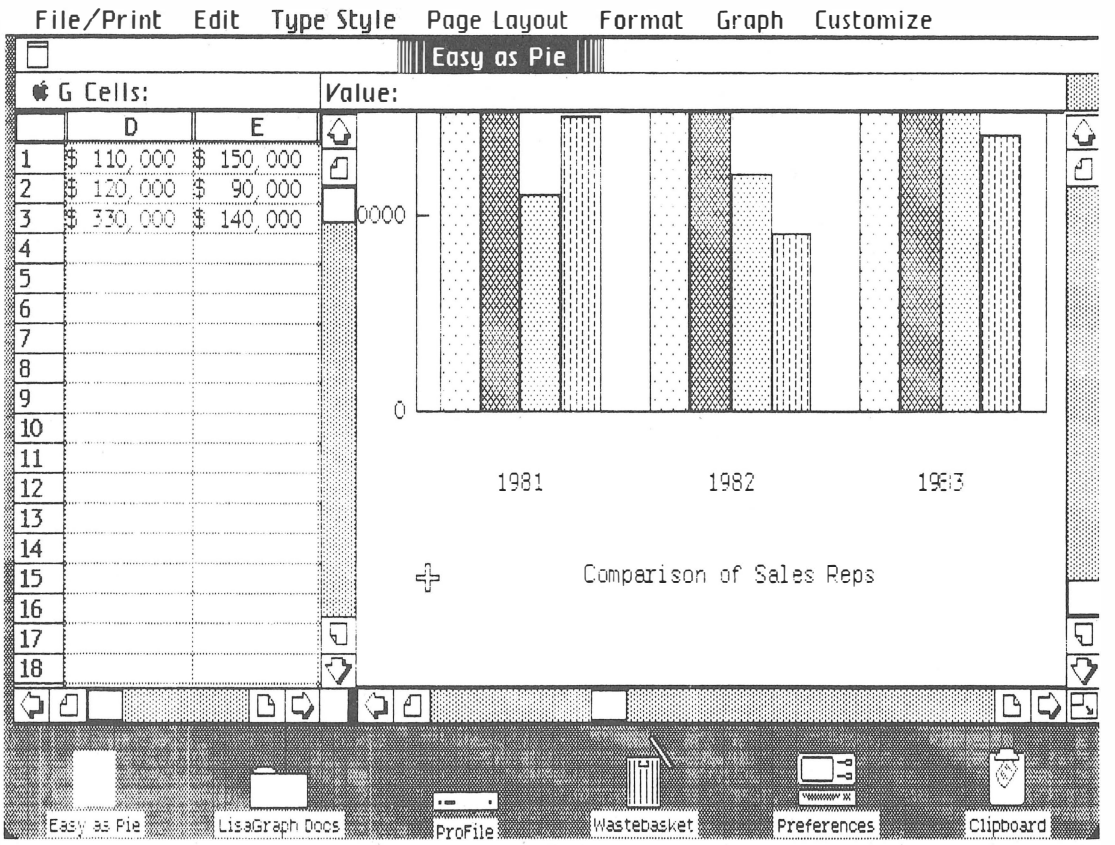
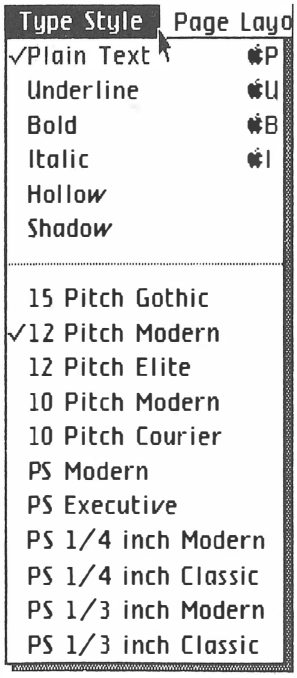

File/Print Edit Type Style Page Layout Format Graph Customize
Easy as Pie
G Cells:
Value:
D
E
1 $ 110,000 $ 150,000
2 $ 120,000 $ 90,000
3 $ 330,000 $ 140,000
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
0000
0
1981
1982
1983
Comparison of Sales Reps
Easy as Pie
LisaGraph Docs
ProFile
Wastebasket
Preferences
Clipboard

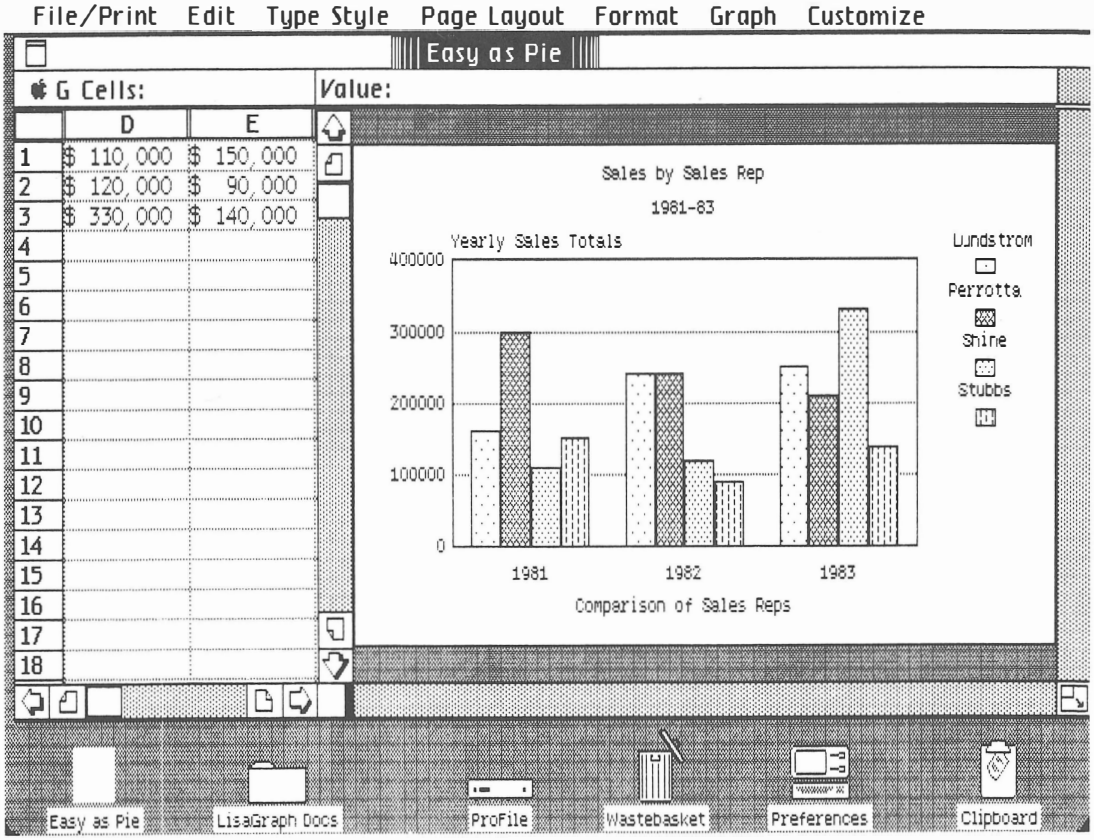
Figure 7–17



When a chart is reduced to fit, you don't get to choose various type styles or see them on the screen. To take advantage of the extensive **Type Styles menu** (Figure 7–17), which produces 264 possible combinations of type face, size and style, you have to go to actual size. (Figure 4–15—in the LisaWrite chapter—shows the type faces and sizes; Figure 9–17—in the LisaDraw chapter—shows the type style possibilities.)

The **Format menu** works as it does in LisaCalc, letting you decide how you want decimal points, dollar signs and commas to be handled in the data table, and whether you want the information in a cell to be centered, flush left or flush right.

Figure 7–18



One other feature of the Customize menu (Figure 7–11) is worth mentioning—the ability to add **grid lines.** Figure 7–18 shows how this looks.

For further customization, you can move LisaGraph charts into LisaDraw, the queen of the Lisa tools. But before I cover that, I want to describe another kind of charting program that can also be customized in LisaDraw—LisaProject.

8 Scheduling and Job Tracking with LisaProject

LisaProject helps you plan and/or keep track of any kind of project by creating wall charts up to 32 square feet in size (using as many as sixty different sheets of paper).

When you tear off a sheet of LisaProject Paper and open the document thus created, you get a window that looks like Figure 8–1. You'll notice that we have a new kind of pointer—a small, solid cross. This is called the **drawing pointer** and it's used to draw boxes and lines.

If your project is *very* simple, you just draw a line from the circle labeled "start" to the one labeled "end". But most projects are somewhat more complicated than that.

The first thing you need to know is how to move circles and other visual elements around. You select one the same way you select anything on the Lisa—by moving the pointer to it and clicking the button. But it's a little more tricky than that. If you put the drawing pointer inside a circle, it turns into a text pointer (that's so you can change the text inside the circle if you want). If you move it just to the edge of the circle, however, it turns into an arrow—that's when you have to click to select the circle.

Figure 8–1

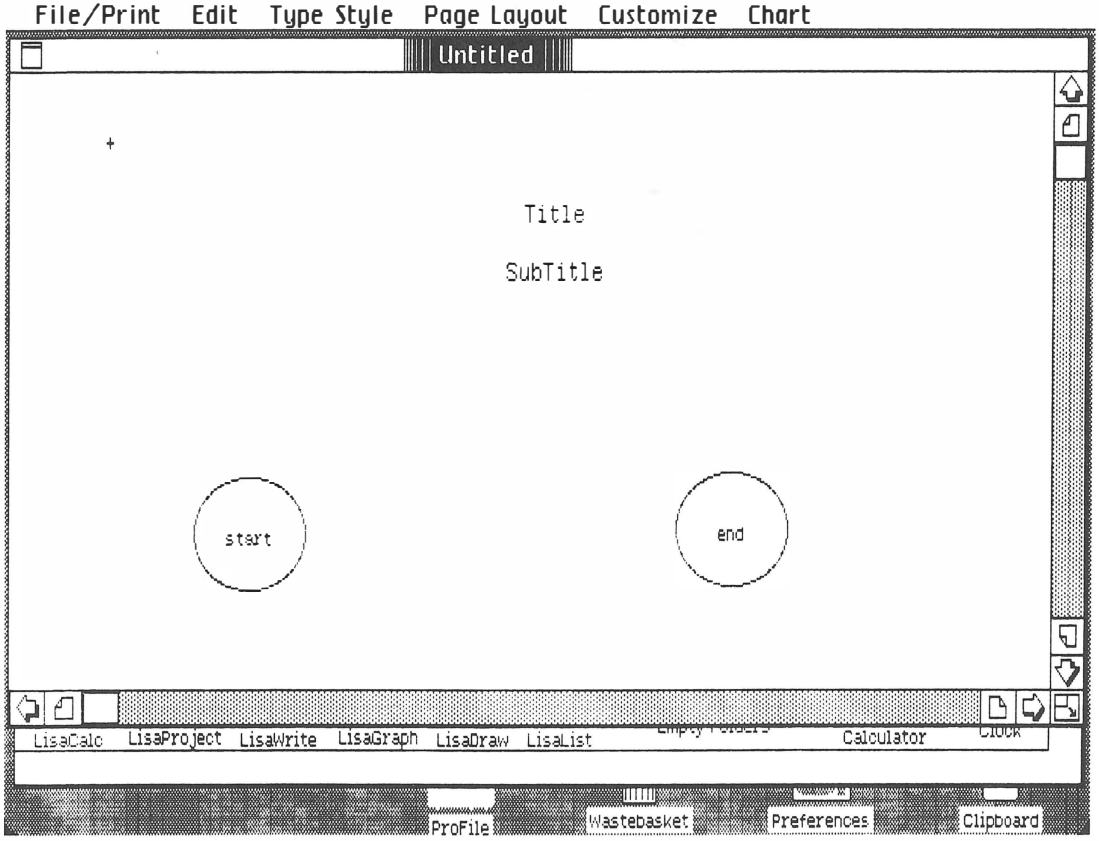
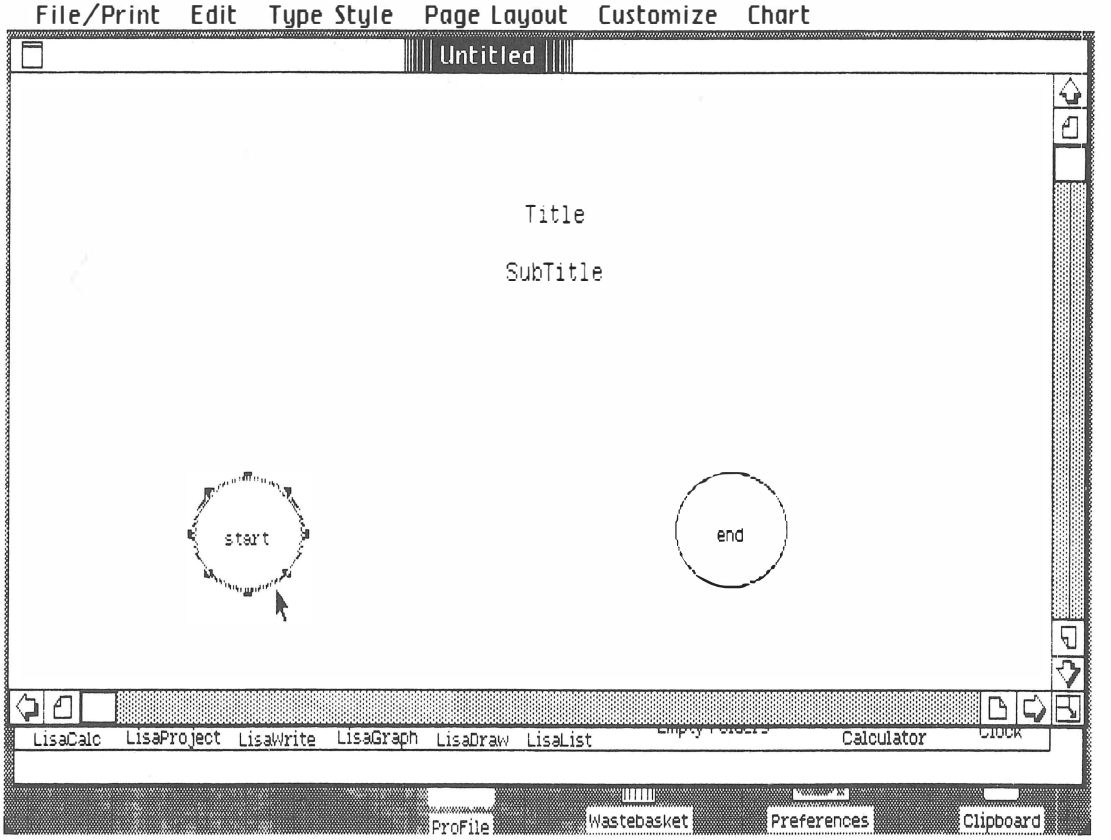

File/Print
Edit
Type Style
Page Layout
Customize
Chart
Untitled
Title
SubTitle
start
end
LisaCalc
LisaProject
LisaWrite
LisaGraph
LisaDraw
LisaList
Calculator
ProFile
Wastebasket
Preferences
Clipboard

Figure 8–2



In LisaProject, things don't show they're selected by becoming highlighted. Instead, they turn grey and grow two to eight little bumps—which are called **handles**. Figure 8–2 shows you what a selected object looks like.

Figure 8–3

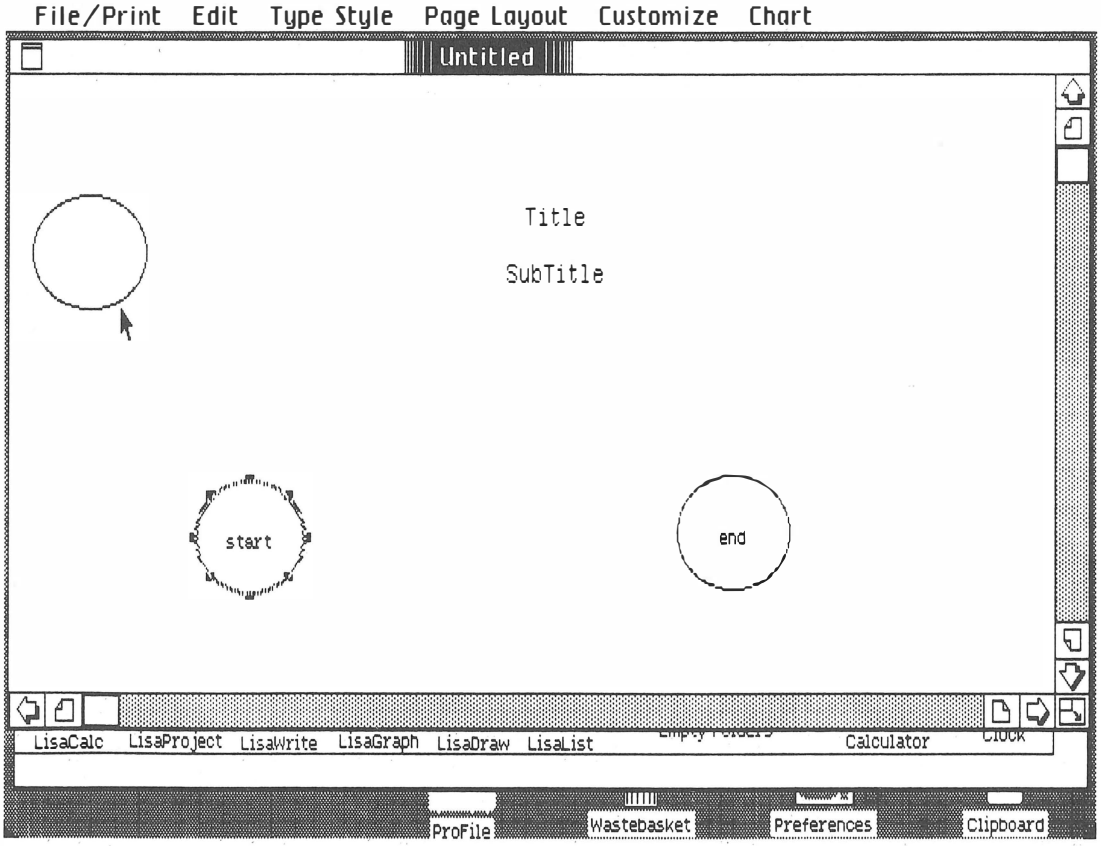
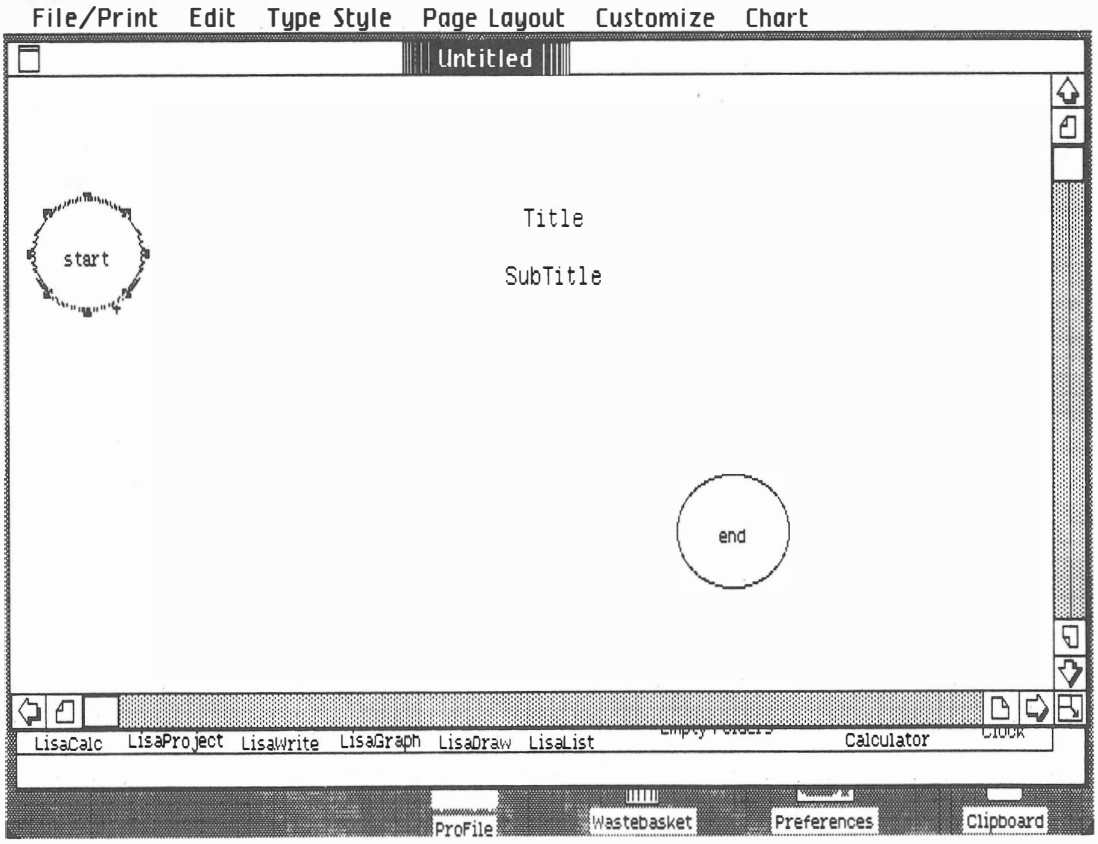

File/Print
Edit
Type Style
Page Layout
Customize
Chart
Untitled
Title
SubTitle
start
end
LisaCalc
LisaProject
LisaWrite
LisaGraph
LisaDraw
LisaList
Calculator
Clock
ProFile
Wastebasket
Preferences
Clipboard

Figure 8–4

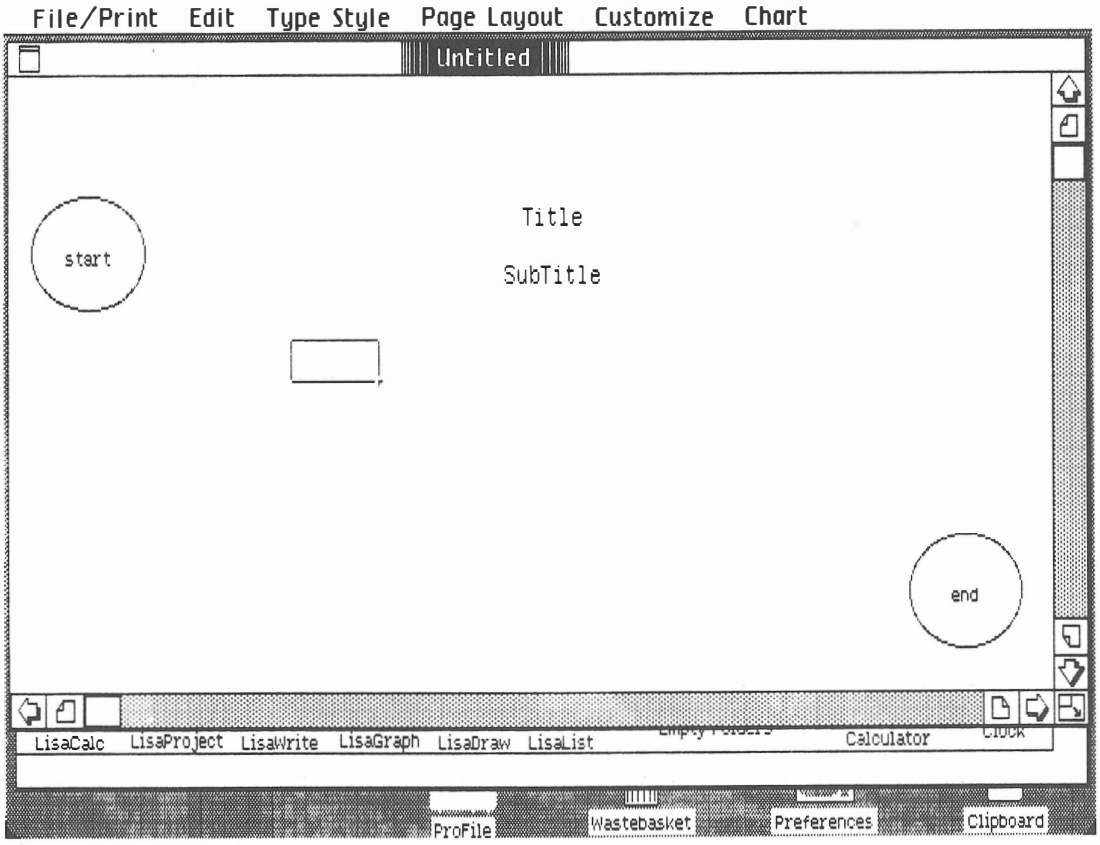


When you move a selected circle (by holding the button down and moving the pointer), it leaves a shadow in its original location (Figure 8–3). When you release the mouse button, the circle disappears from the old location and the pointer turns back into a cross (Figure 8–4).

Circles like the one I've been moving around are called **milestone circles**, because they represent important events in your project. LisaProject uses two other basic visual elements—"task boxes" and "arrows".

Task boxes are rectangles that represent one particular job. They also indicate the resources needed to do that job and the time it takes each resource to make

Figure 8–5



its contribution. (Milestone circles don't indicate either of these things).

To draw a task box, you place the drawing pointer where you want one corner of the box to be, then hold the button down and move the pointer to where you want the opposite (diagonal) corner of the box to be. You can make the box any size you want, as Figures 8–5 and 8–6 demonstrate.

Figure 8–6

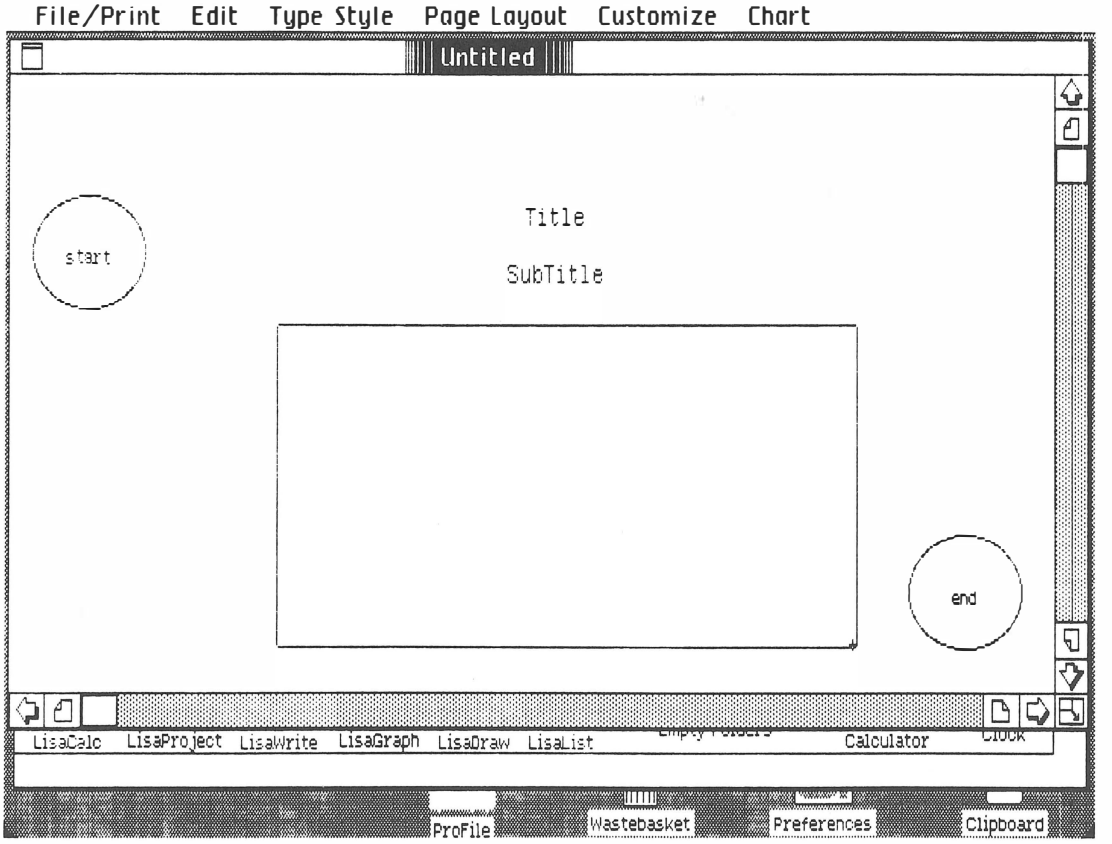
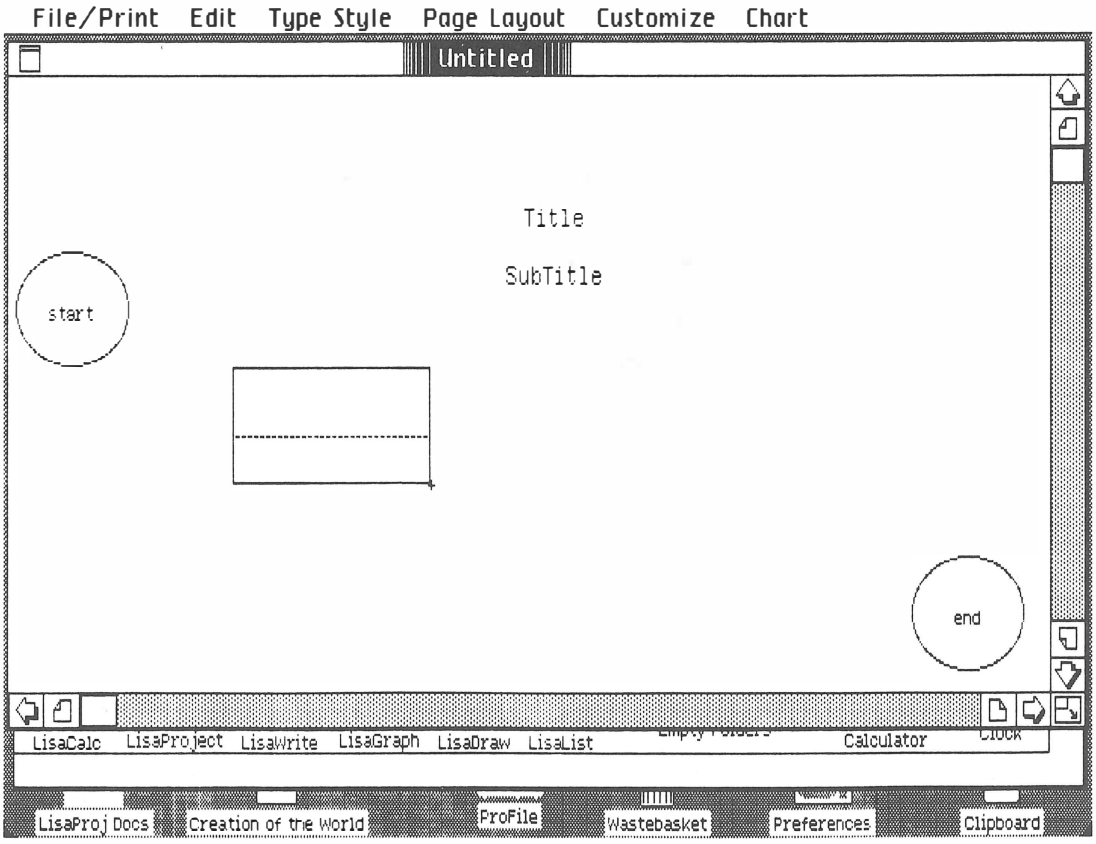

File/Print Edit Type Style Page Layout Customize Chart
Untitled
start
Title
SubTitle
end
LisaCalc LisaProject LisaWrite LisaGraph LisaDraw LisaList
Calculator
ProFile
Wastebasket
Preferences
Clipboard

Figure 8–7

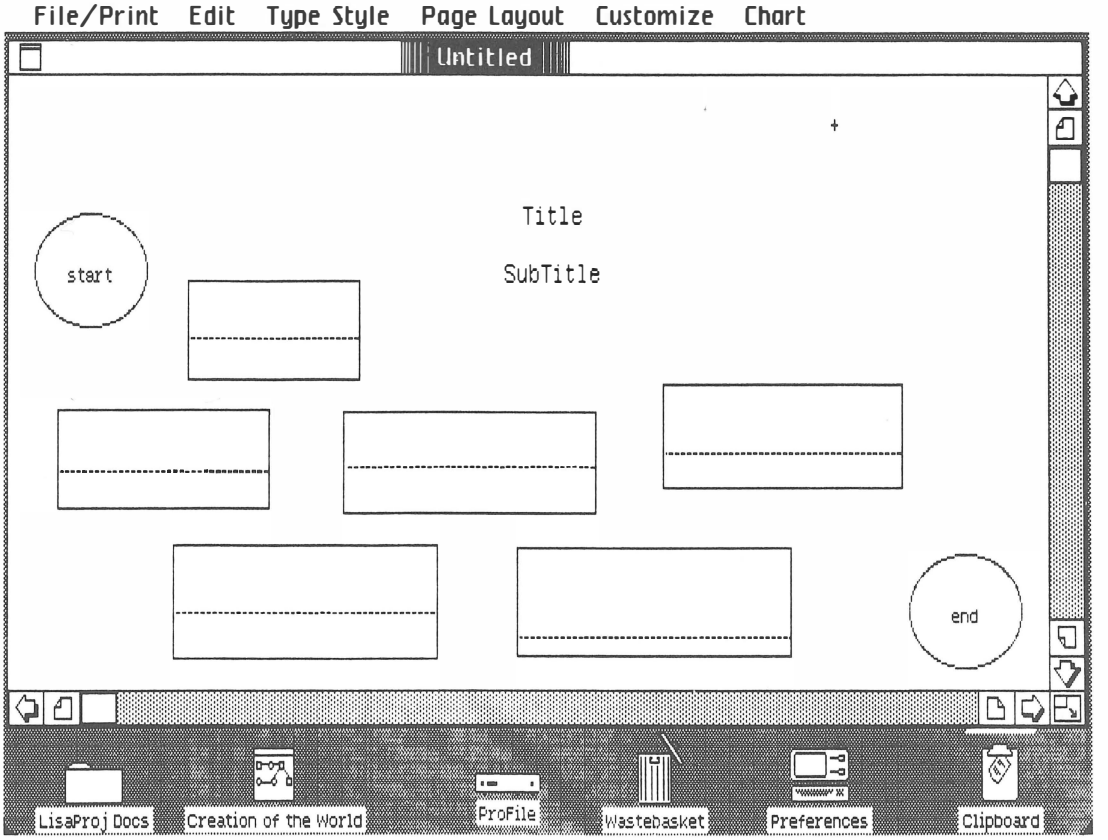


When you release the button, LisaProject draws a dotted line across the box and puts an insertion point in it (Figure 8–7). The top half of the box is for the name of the task, the bottom half for the resources and the time required.

Once you have a box, you can stretch or shrink it by grabbing one of the handles and pulling or pushing. The four handles in the middle of the sides leave the other dimension unchanged; the four at the corners change both height and width at the same time.

You can also move a box, keeping it the same shape, by grabbing it anywhere *but* on one of the handles. If you want a bunch of identical boxes, you can use Copy

Figure 8–8



on the Edit menu (as described in the LisaWrite chapter).

I used all these techniques to produce Figure 8–8. In Figure 8–9, I changed the title of the chart, the subtitle, and the text in the milestone circles, and filled in appropriate information in the task boxes (with the help of King James and friends).

The **resources** section of a task box usually indicates the person or people responsible for the task, or the equipment needed to complete it. But the responsible "person" for every task in Figure 8–9 is God, and it wouldn't be very interesting simply to repeat that in each box. So I've used the resources sections to indicate

Figure 8–9

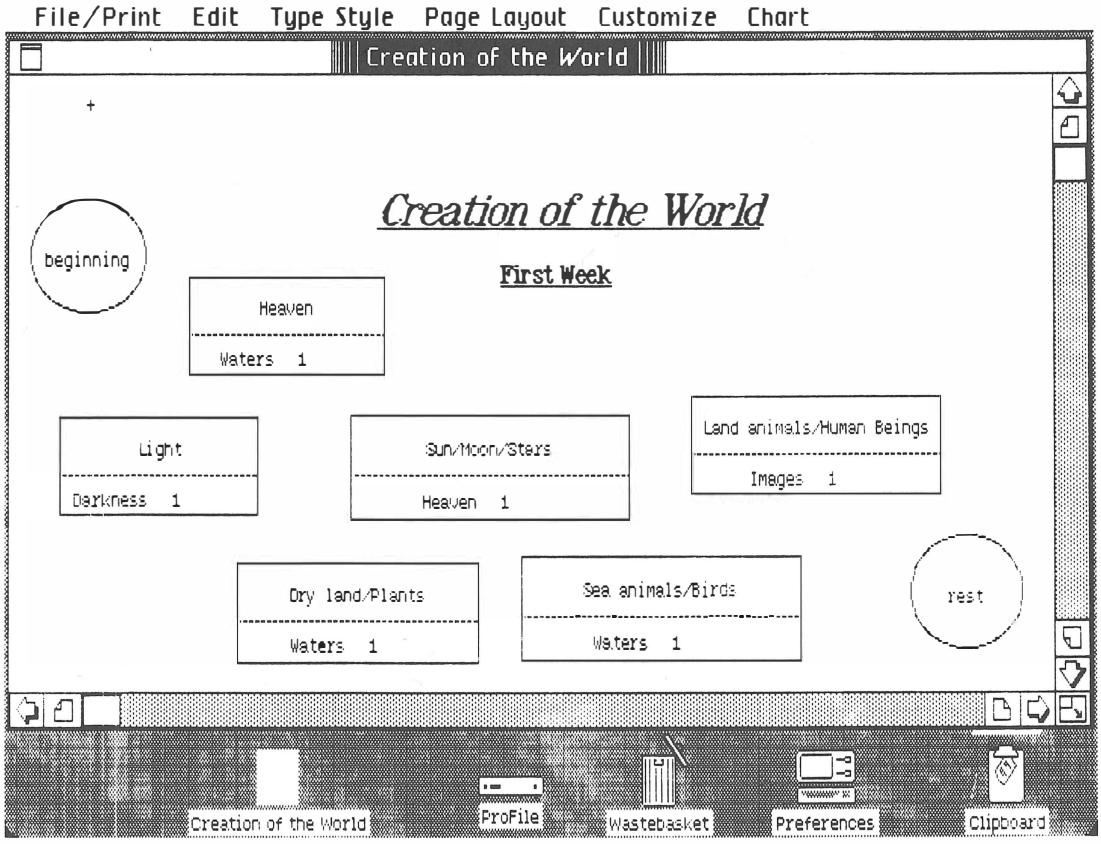
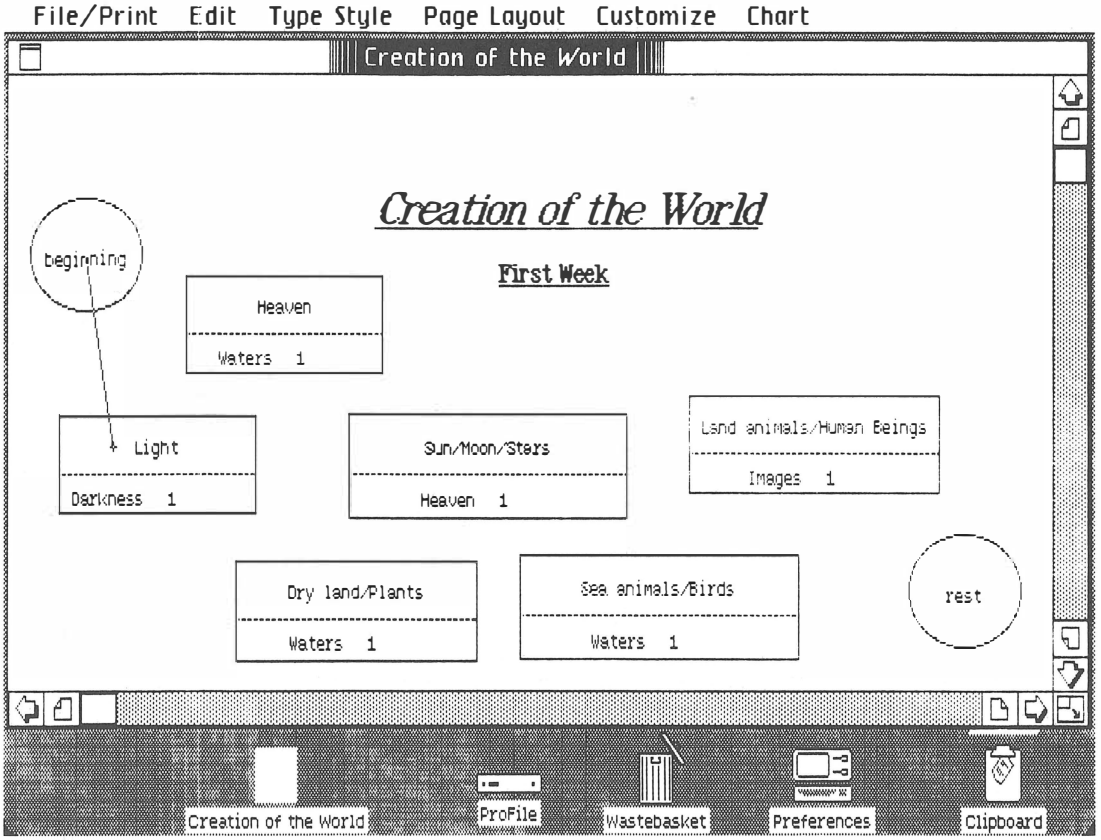

File/Print Edit Type Style Page Layout Customize Chart
Creation of the World
Creation of the World
First Week
beginning
Heaven
Waters 1
Light
Darkness 1
Sun/Moon/Stars
Heaven 1
Land animals/Human Beings
Images 1
Dry land/Plants
Waters 1
Sea animals/Birds
Waters 1
rest
Creation of the World
ProFile
Wastebasket
Preferences
Clipboard

Figure 8–10



the materials God used. The time required for each task is (the book says) one day.

Now we come to the third of LisaProject's main visual elements—**arrows**. These are used to connect task boxes and milestone circles. (They're also misnamed, since they have no arrowheads on them; for that reason, I simply call them **lines**.)

To connect one circle or box with another, you place the pointer in it, hold down the button, and move into the other box or circle (as I've done in Figure 8–10). When you release the button, LisaProject draws a line between the two objects (stopping at the edge of each, so as not to obscure the text within). Figure

Figure 8–11

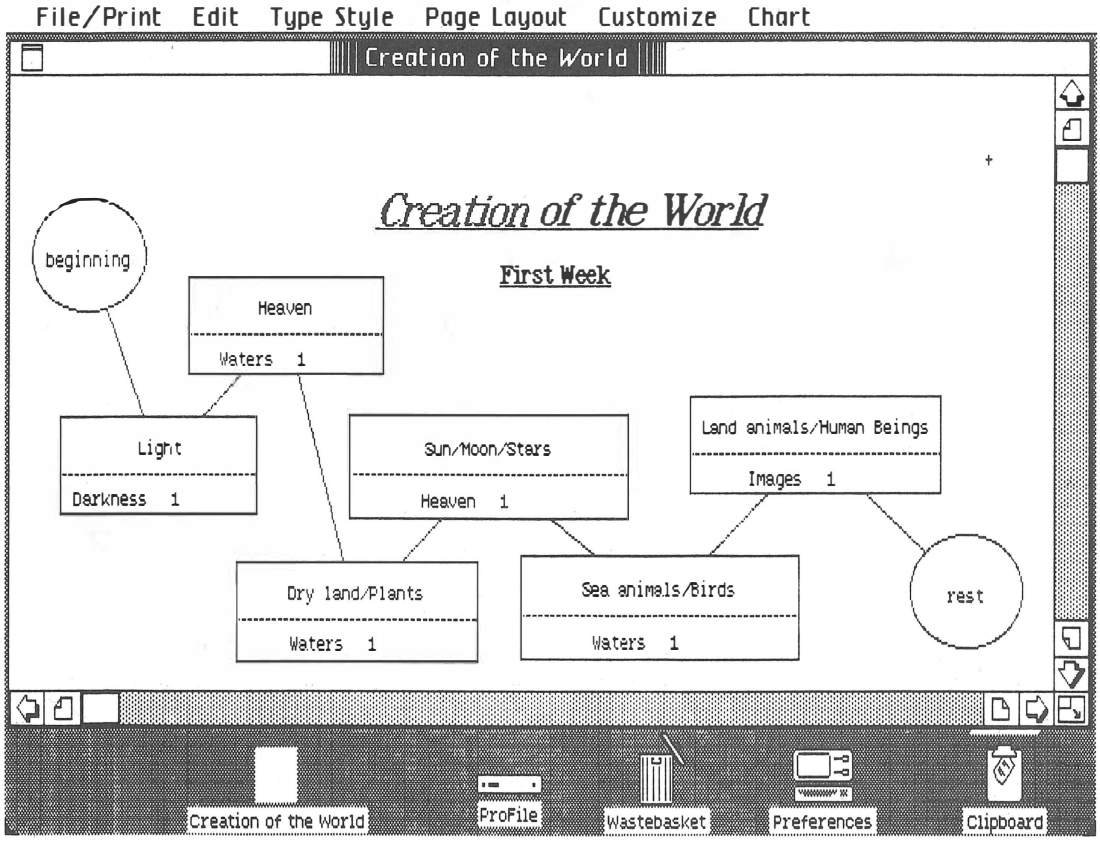
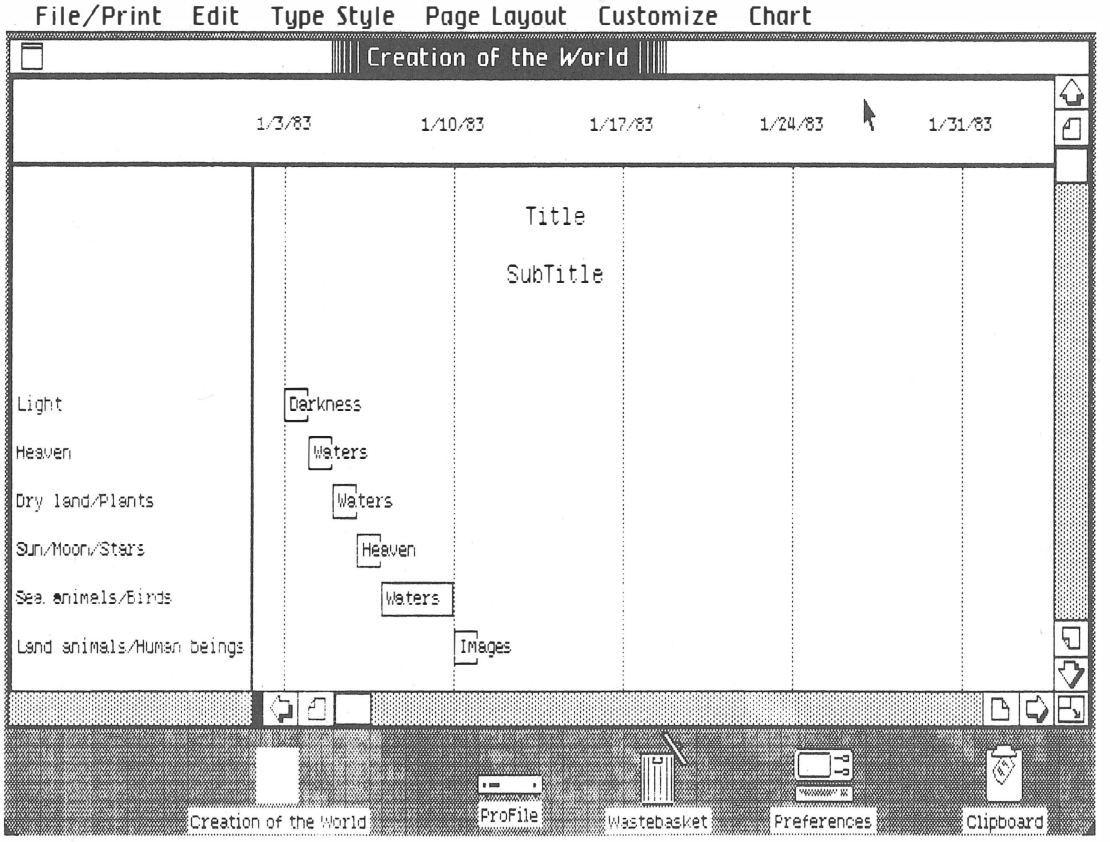


Figure 8–12

Figure 8–13



8–11 shows all the boxes and circles connected with such lines.

Well, that should give you a good basic idea of how you create a LisaProject chart. (I should add that you don't have to be as doggedly linear as I—and God—were here; you can draw lines from more than one box to more than one box—as I have, for example, in Figure 8–15.)

But LisaProject is just getting started. So far we've just created one of the three kinds of LisaProject charts—as the **Chart menu** in Figure 8–12 indicates. The **Schedule chart** is the only one you create yourself; LisaProject creates the other two for you.

Figure 8–13 shows the **Task chart** LisaProject made from the "Creation of the World" Schedule chart. It places your project in a time frame and shows when each task will be completed (as well as when each resource will be used).

Since we haven't told it any different, LisaProject assumes the creation of the world began on Monday, January 3, 1983. It also assumes that God works a five-day week, which is why it shows the creation of sea animals and birds (day five) as lasting from Friday—when it begins—through Saturday and Sunday.

Both these misapprehensions can be corrected, of course. We can inform LisaProject that the project began in 4004 B.C., not 1983 A.D., and that God works Monday through Saturday but takes Sunday off (or begins on Sunday and takes Saturday off, if you prefer). LisaProject lets you specify a work week of from one to seven days (an easy choice) and you can also insert up to twenty vacation days into a project schedule.

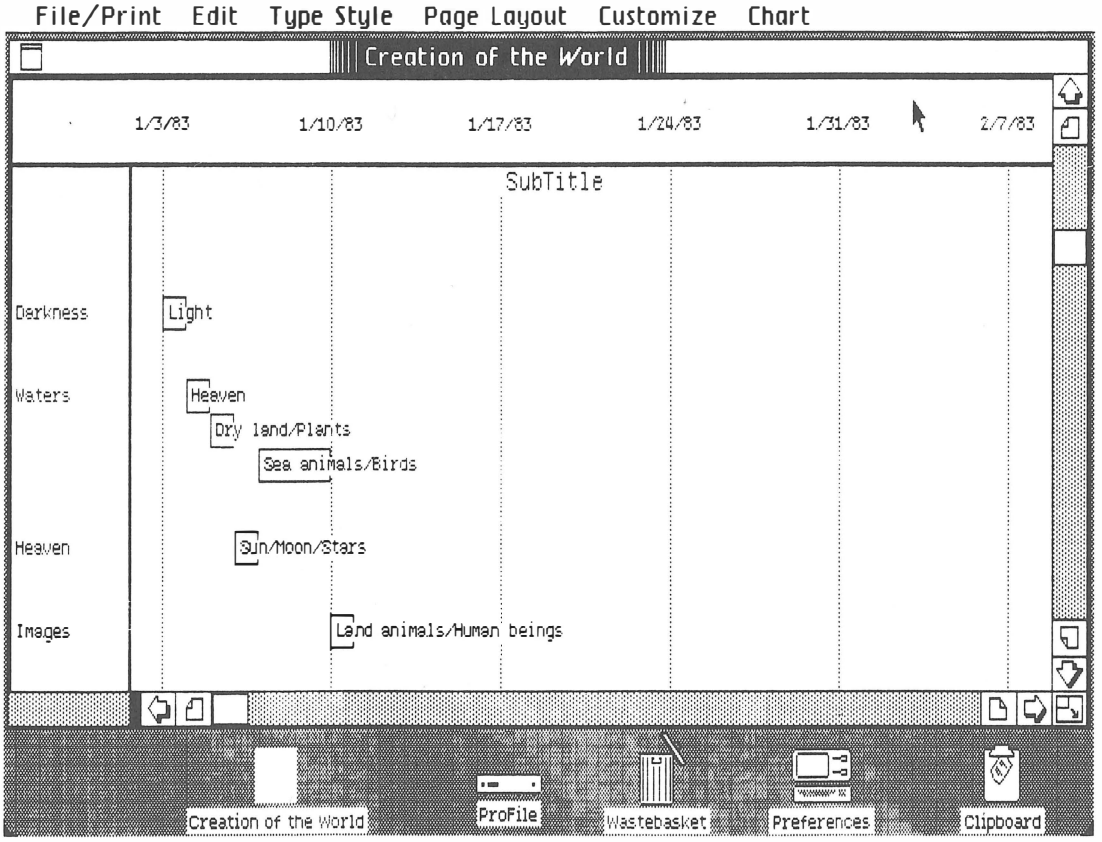
(As you can see from Figure 8–13, LisaProject needs to be given a new title and subtitle for each type of chart; the changes made on the Schedule chart don't transfer.)

Figure 8–14 shows the **Resource chart** LisaProject made from the "Creation of the World" Schedule chart. Here the tasks are grouped by resource, giving you a clear picture of how much each resource will be used. For example, this particular chart makes it clear that "the waters" (both those above and below the firmament) get quite a workout, while other resources are used more sparingly. In more down-to-earth applications, the Resource chart helps you see which people, pieces of equipment and so on, are being over- or under-utilized.

Both the Resource and Task charts indicate when a task has **slack time**—that is, when it can be late without making the whole project late. If a task has no slack time, it's critical.

LisaProject gives you the same selection of type fonts as LisaWrite (Figures 4–14 and 4–15)—without,

Figure 8–14



of course, subscripting and superscripting. The **Page Layout menu** lets you see charts actual size or reduced to fit the window. The latter is useful when you have large charts that extend onto many pages and you simply want to get an idea of their overall shape. Figure 8–15 shows such a chart reduced to fit; the text has been dropped because there isn't room for it.

You can reduce charts to 70% of their current size, and you can do that over and over again (until LisaProject reaches the limit of what it can display intelligibly on the screen).

The **Customize menu** is where you change time frames and ask to have dates displayed on a Schedule

Figure 8–15

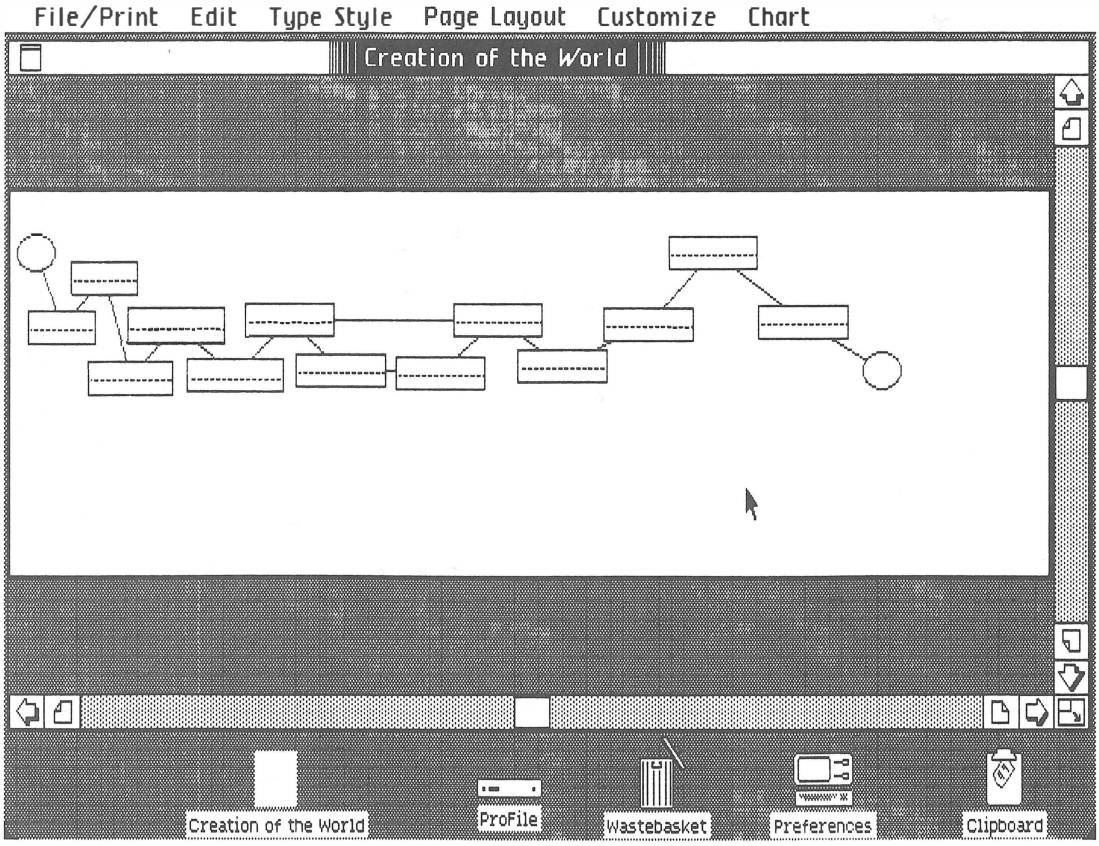


chart. You can also use it to change a task box to a milestone circle (which is how you create a new circle). But for really exciting customization, you need the fabulously powerful LisaDraw, which I'm *finally* ready to describe.

9 Drawing Diagrams and Pictures with LisaDraw

LisaDraw is probably Lisa's most impressive program. Unlike LisaGraph and LisaProject, which prepare specific kinds of graphic presentations, LisaDraw is a relatively unstructured and unrestricted tool that you can use to create just about any kind of diagram, chart, illustration, map or symbol you're capable of imagining. Few graphics programs—at any price, on any computer—have more capabilities.

When you tear off a sheet of LisaDraw Paper and open the document thus created, you get a window that looks like Figure 9–1. The symbols arranged down the left side of the window—called the **palette**—represent a library of predrawn graphic elements. You select the one closest to what you want and then modify its shape and size with the pointer.

In Figure 9–1, the top box (the one with the arrow pointer in it) is grey—which means that it's currently selected. As a result, the pointer is in the shape of an arrow. In LisaDraw, you use the arrow pointer to alter an object you've already drawn, or to select a new type of object from the palette.

Let's move the pointer to the circle box and click the button (Figure 9–2). The circle box turns grey (and the arrow-pointer box turns white). When you move the pointer back out of the box onto the drawing space, it becomes a small, solid cross; as you know from LisaProject, this is the **drawing pointer**.

Figure 9–1

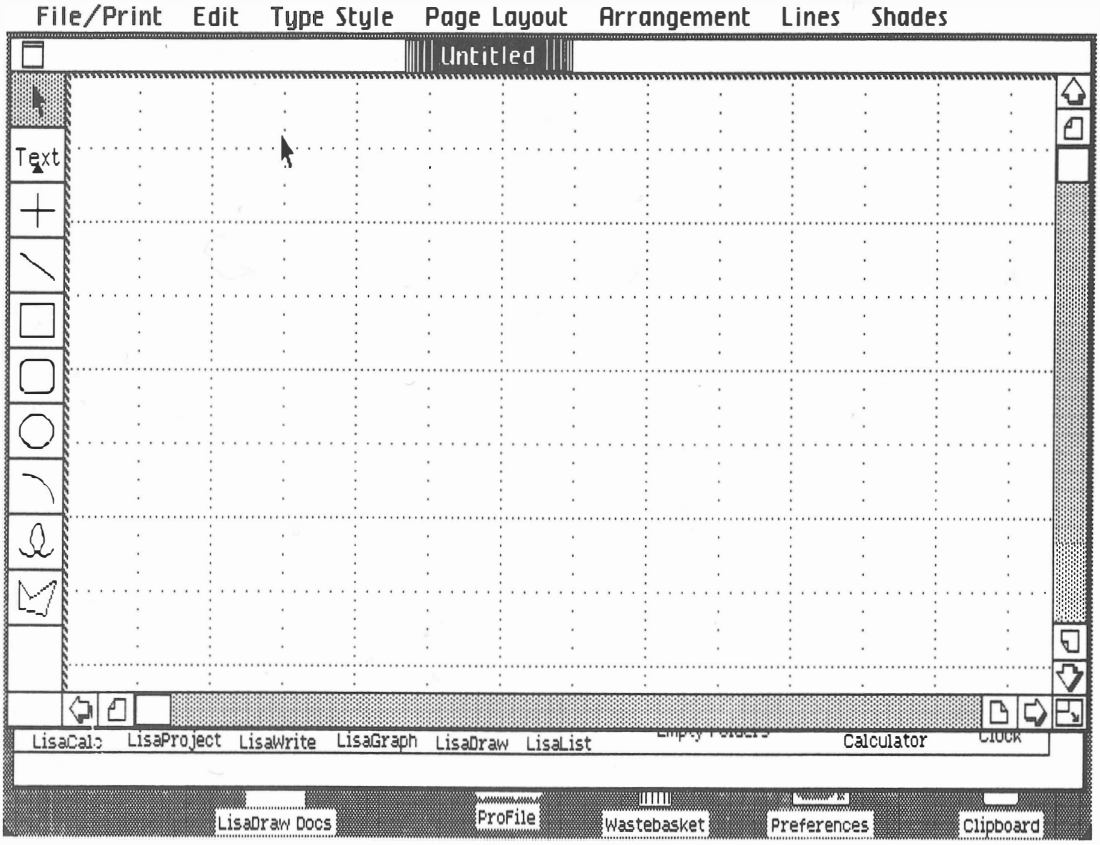


Figure 9–2

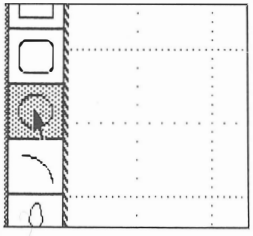
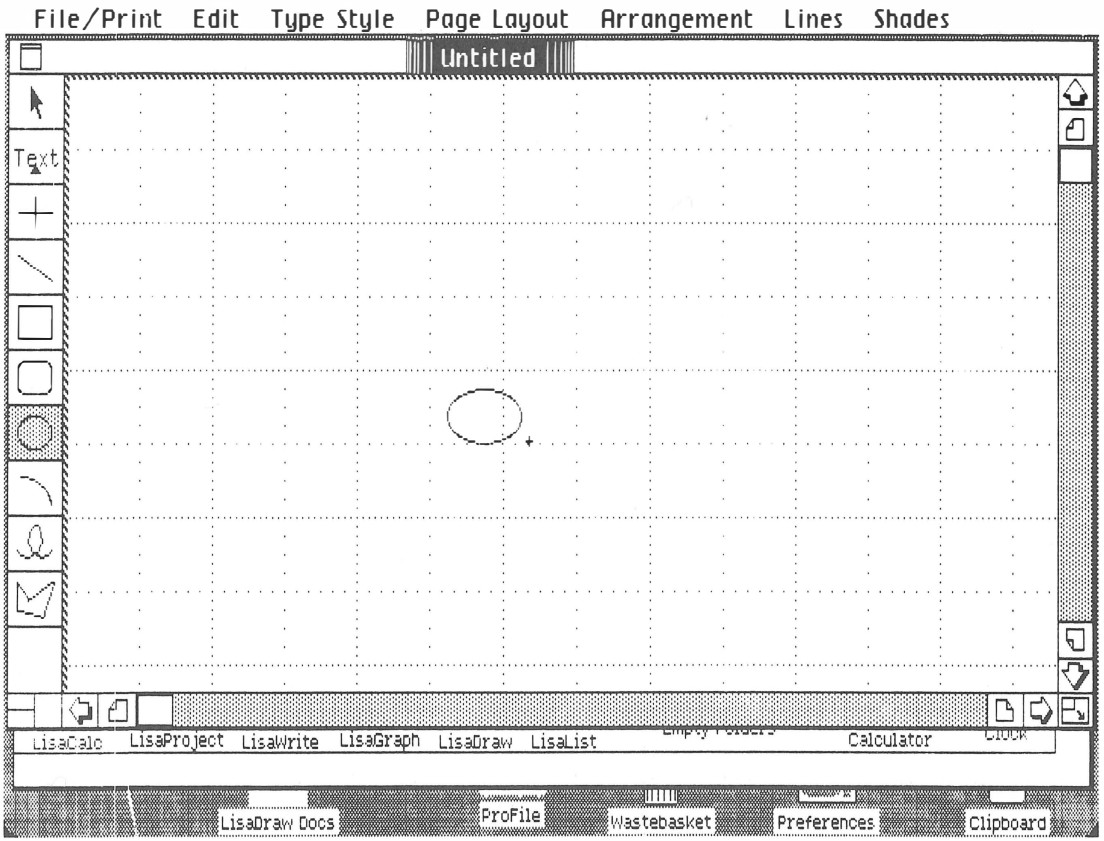


Figure 9–3



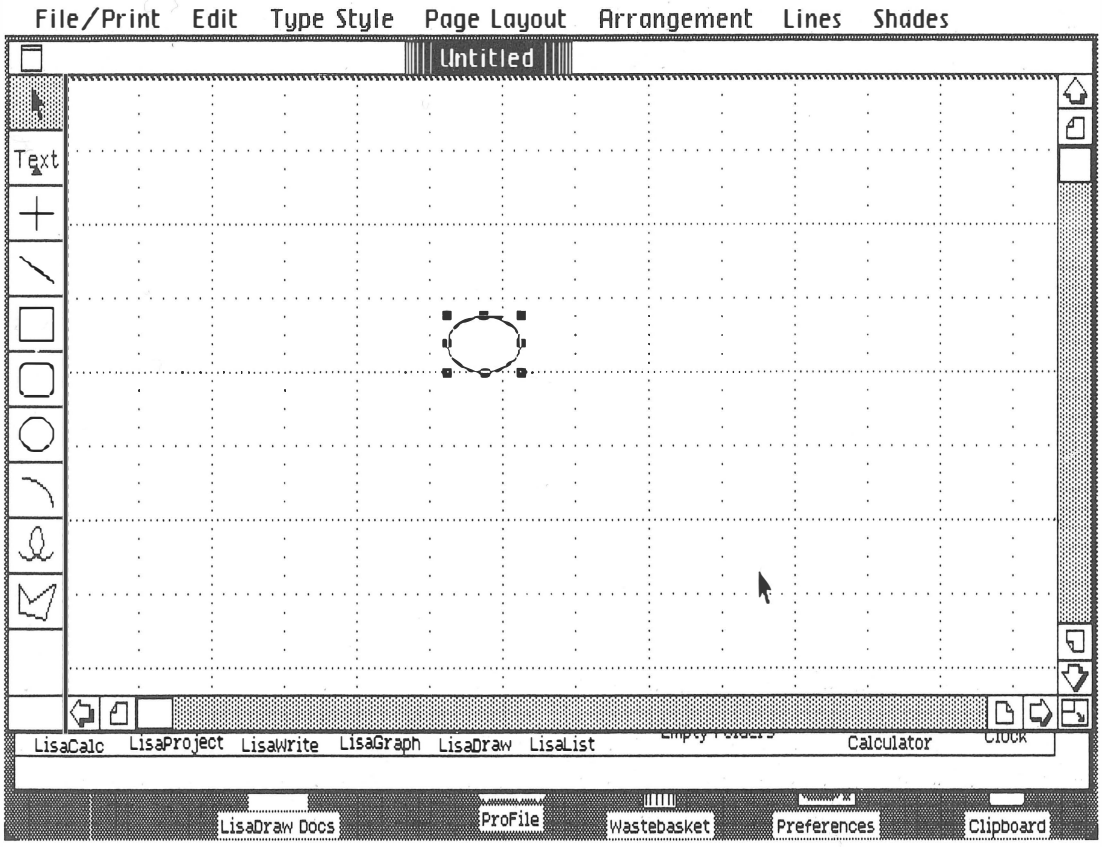
Once the circle box is selected, you're ready to create a circle or oval of any size or shape. You simply:

1. move the drawing pointer to where you want to "stick" one edge of the object;
2. press the mouse button; and
3. move the pointer.

In Figure 9–3, I've done that and created a horizontal oval. Now let's alter that shape:

As soon as you let up on the button, the shape you've drawn is selected. (You can also select any object at any later time by moving the arrow pointer to it and clicking the button.) Note that the pointer becomes an

Figure 9–4



arrow again and the arrow pointer box is automatically reselected.

As with LisaProject, two to eight small square boxes called **handles** appear all around a shape to show it's selected (see Figure 9–4—I moved the pointer away so you'd have a clear view of them).

Now let's say you want to turn this drawing into a vertical oval. You just grab the handle that's at the bottom and pull (i.e. you put the tip of the pointer right on the handle and hold down the mouse button while you move the pointer). Figure 9–5 shows one of the many possible results. (The handles disappear while you're changing the shape of the object, but reappear as soon as you release the mouse button.)

Figure 9–5

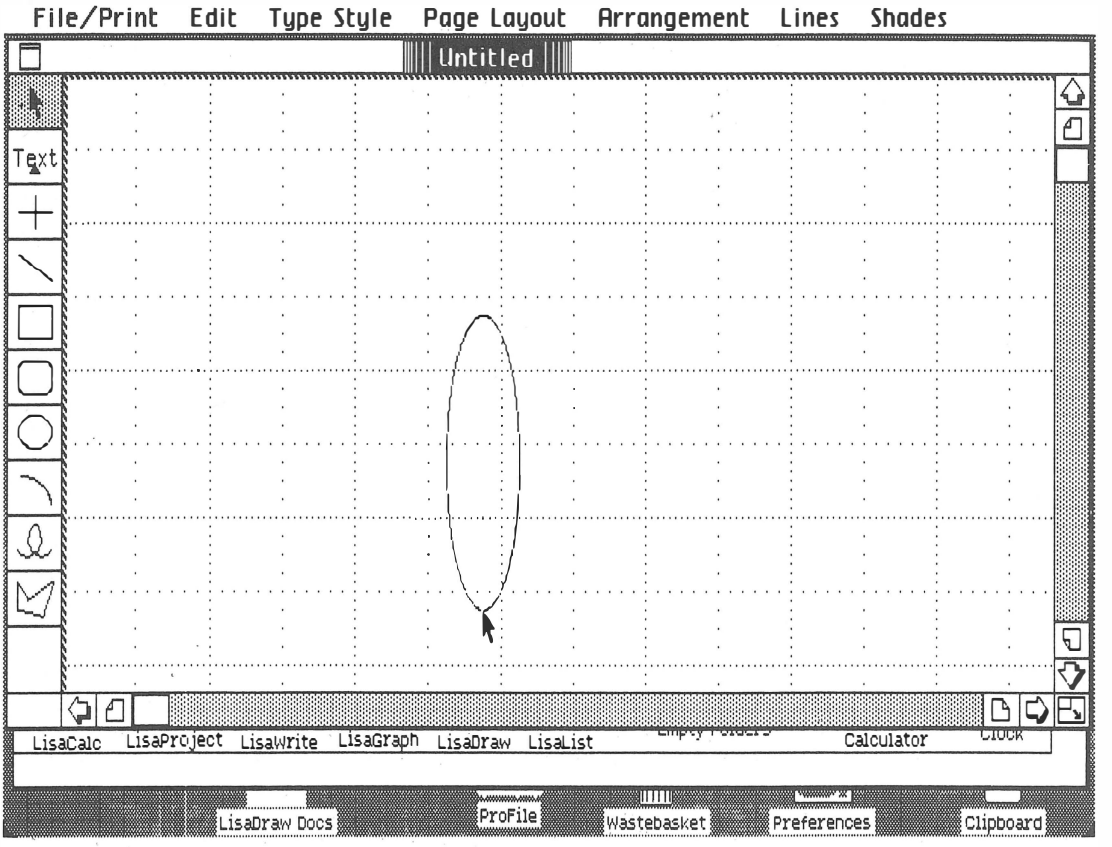
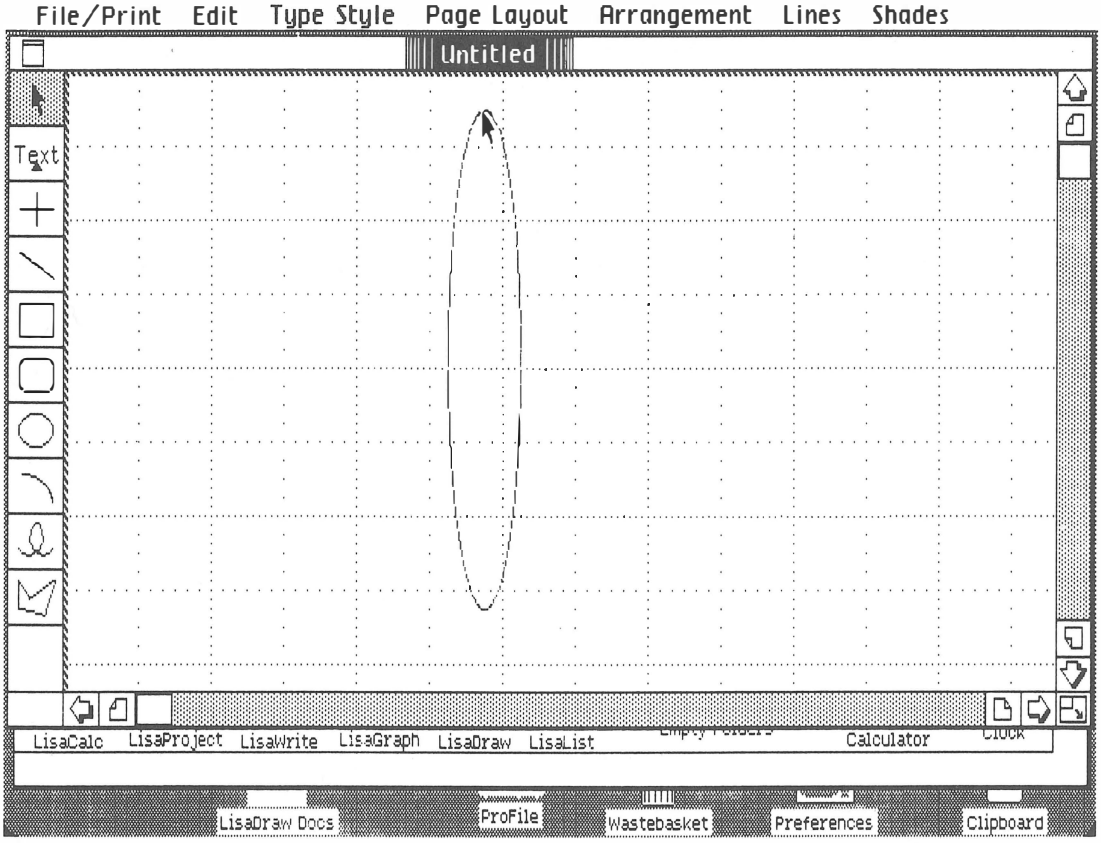

File/Print
Edit
Type Style
Page Layout
Arrangement
Lines
Shades
Untitled
Text
LisaCalc
LisaProject
LisaWrite
LisaGraph
LisaDraw
LisaList
Calculator
LisaDraw Docs
ProFile
Wastebasket
Preferences
Clipboard

Figure 9–6



You can also stretch the oval up by grabbing the top handle (Figure 9–6) or pull it sideways into a circle (Figure 9–7). And, of course, you can move any object you draw wherever you want, just by grabbing it anywhere *but* on a handle.

The box right above the circle box in the palette contains a rectangle with rounded corners; this shape is useful for drawing flowcharts, labels and the like. The procedure is the same as with the circle; you just place the drawing pointer where you want one corner of the shape to be and pull. Figure 9–8 shows an example of the result.

Figure 9–7

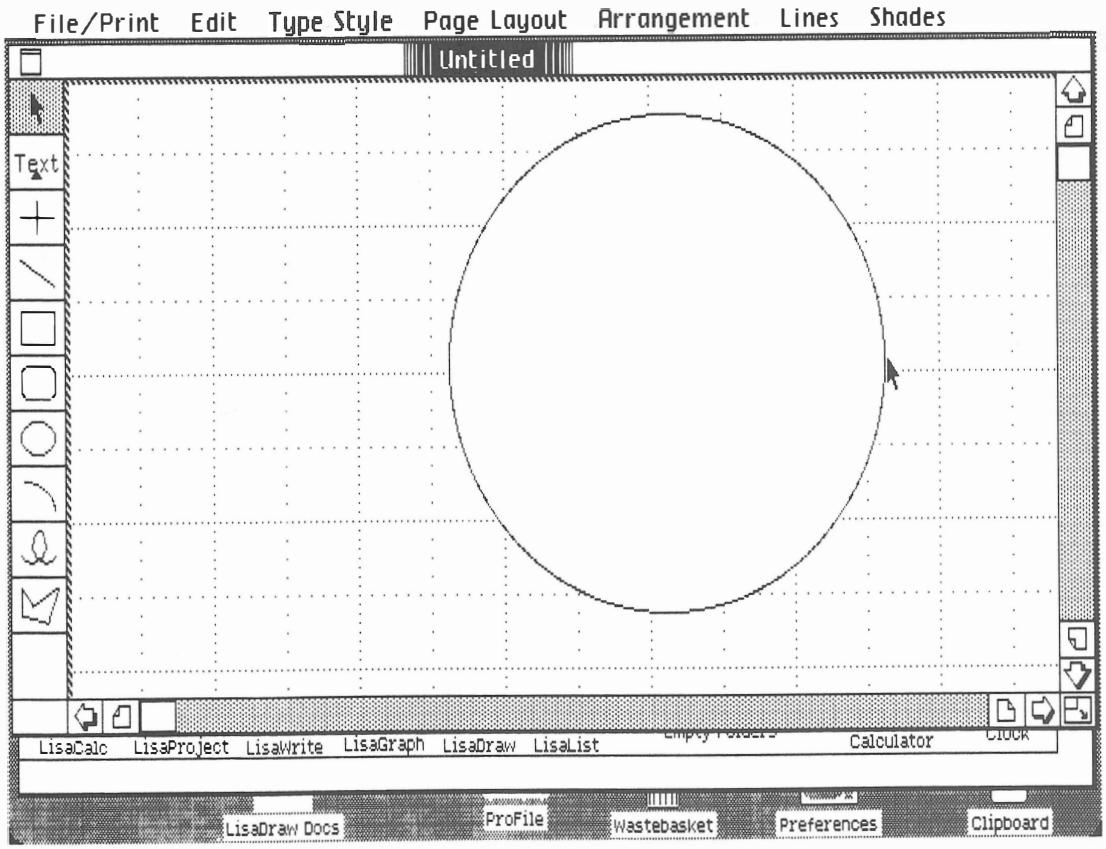


Figure 9–8

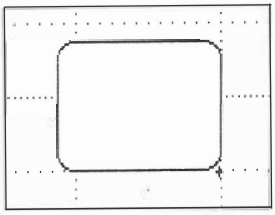
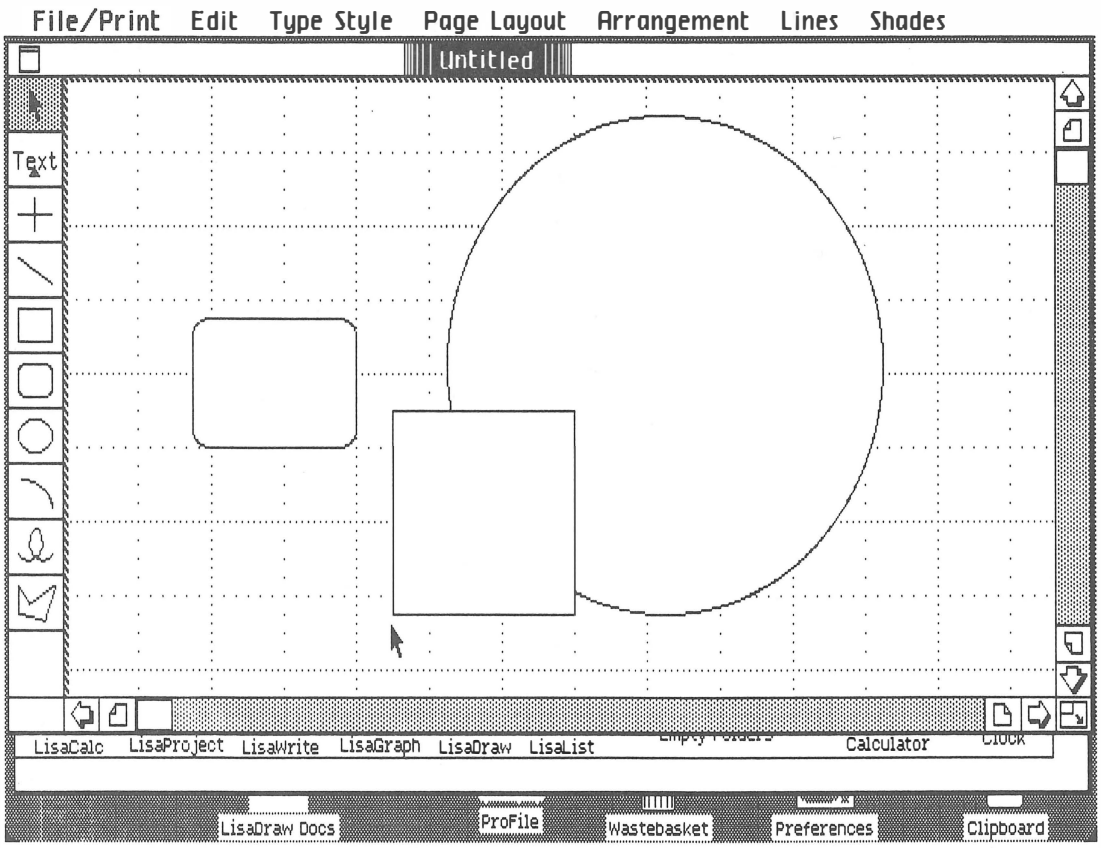


Figure 9–9

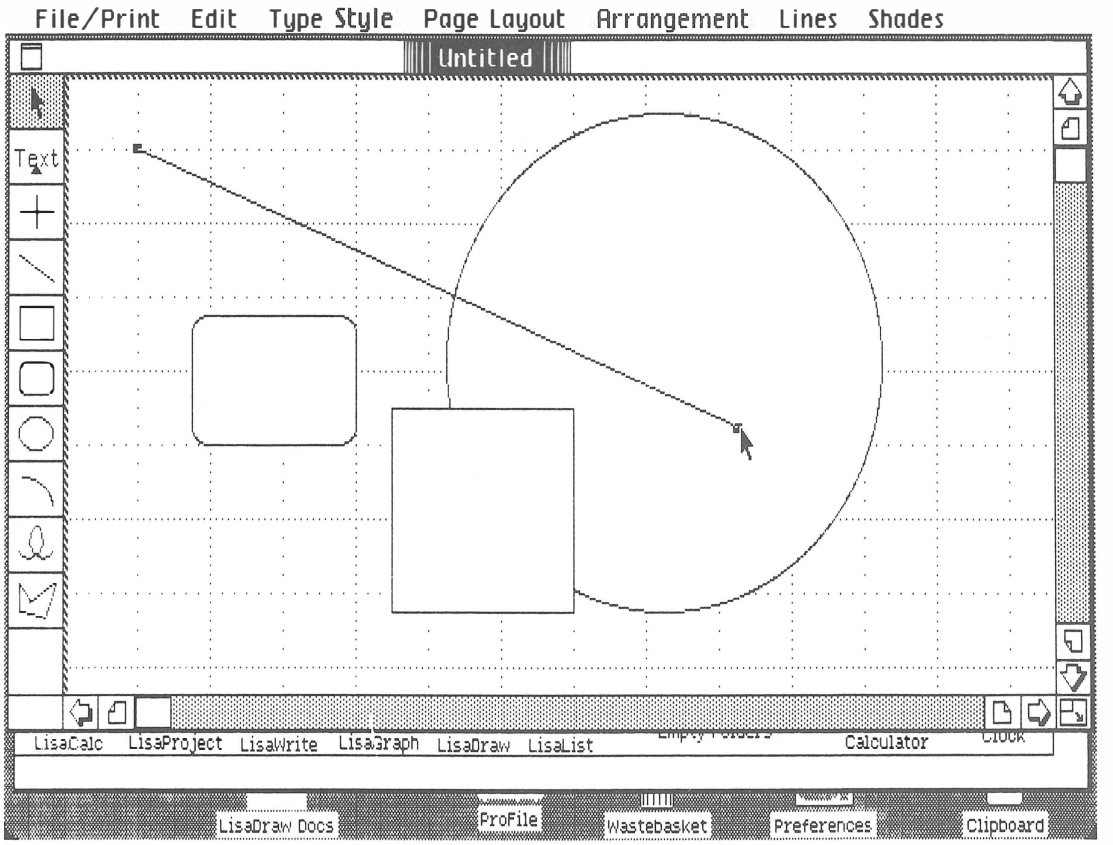


The next box up contains a regular, square-cornered rectangle. Both these kinds of rectangles can be stretched, shrunk and expanded once they've been created, in just the way that circles can. LisaDraw also lets you superimpose any shape on any other, as I have in Figure 9–9.

(In Figure 9–8, I printed the screen before I had released the button, which is why the pointer is still a cross; in Figure 9–9, I released the button but then deselected the square—by clicking elsewhere in the drawing area—so you wouldn't be distracted by the handles.)

The next box up in the palette is for diagonal lines. When you select this box, move the pointer out into

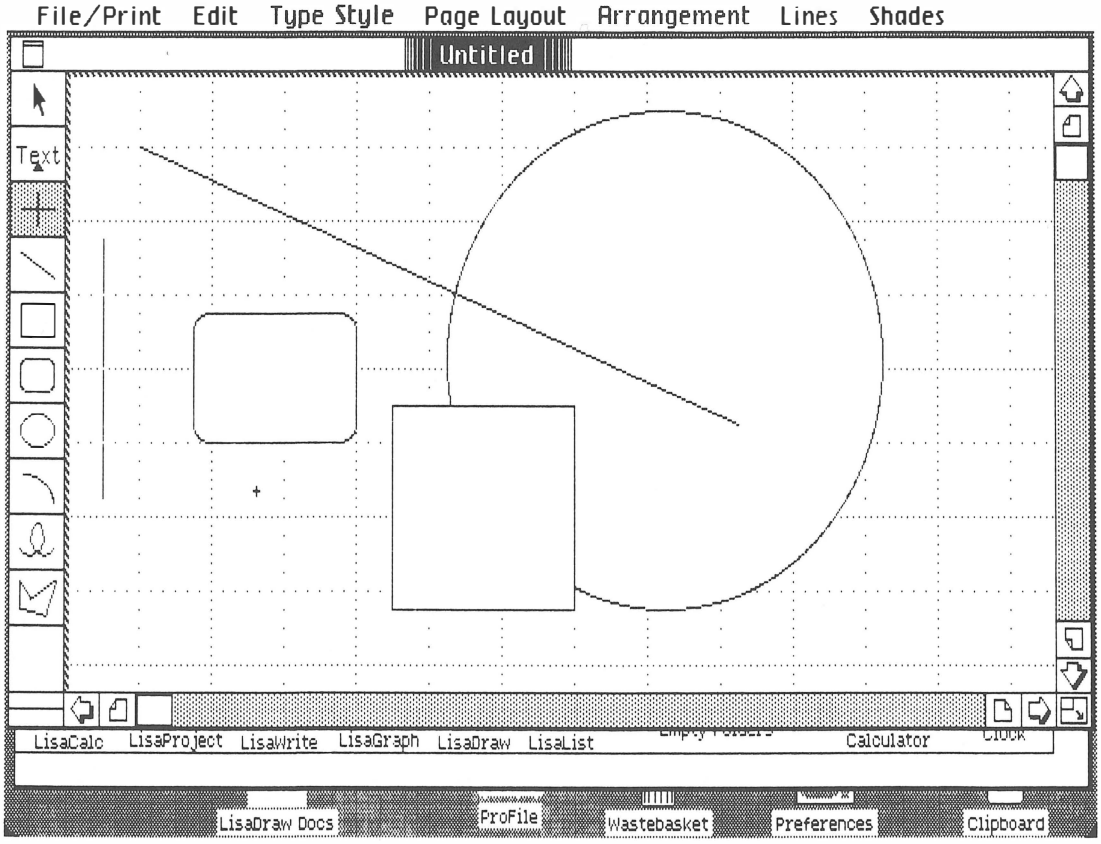
Figure 9–10



the drawing area and hold down the mouse button, you stick one end of a line to a particular spot. As you move the pointer, a line grows from that original spot until you release the button (Figure 9–10). I left the handles on this time, so you can see how lines look when they're selected.

The diagonal line box doesn't restrict you to lines that run at angles; you can also use it to make horizontal and vertical lines if you want. But to make lines that you know for sure are *perfectly* horizontal or vertical, use the next box up. If you move the pointer at an angle with this box selected, LisaDraw will figure out whether you're moving it closer to horizontal or vertical and draw the line that way. Huh?

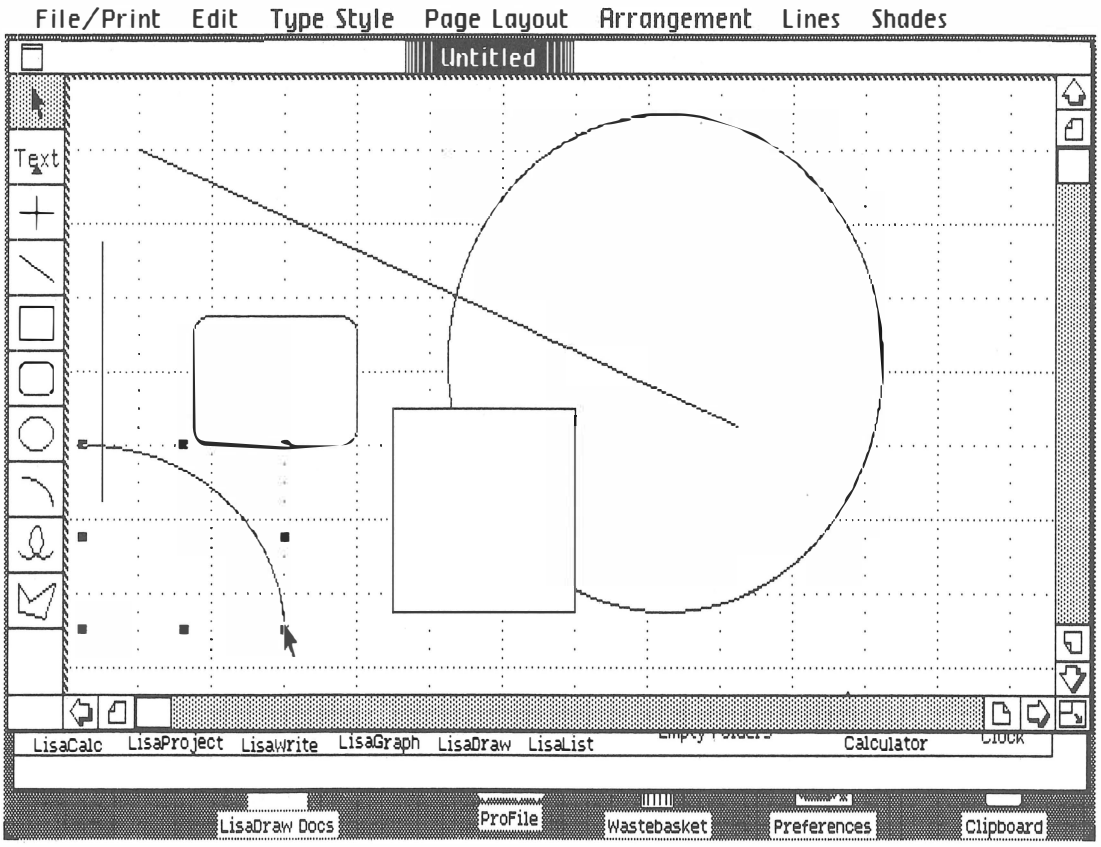
Figure 9–11



For example, in Figure 9–11, I stuck the beginning of the line near the left edge of the drawing area, right between the horizontal/vertical line box and the diagonal line box. Then I moved the pointer just a little bit to the south of southeast—and LisaDraw drew a straight north-south line.

If I were to move the pointer all the way east to the other side of the big circle—but not move it another millimeter south—the line wouldn't change. It will only respond to north-south movement. If I moved the pointer all the way to the top of the screen (regardless of how far to the left or right it was), the line would shrink right up to the beginning point and would then begin to extend north.

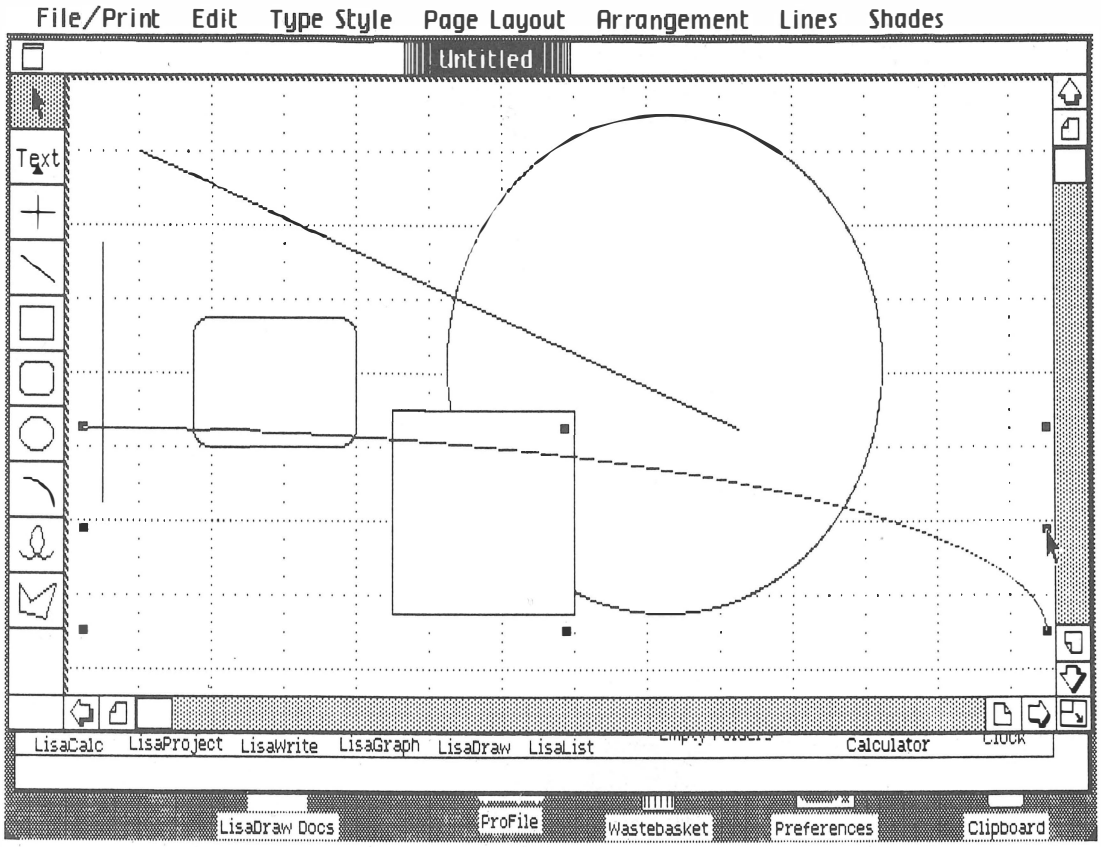
Figure 9–12



If I had originally moved the pointer more toward the east than the south—toward the top of the rectangle with the rounded corners, for example—LisaDraw would have locked into horizontal, rather than vertical, mode. From then on it would only have responded to the east-west component in the pointer's movement and would have ignored the north-south component.

If you happen to accidentally begin in the wrong direction—and thus find yourself stuck with a horizontal line, say, rather than a vertical one—just release the button (which automatically completes the line and selects it), go up to the Edit menu, Cut the line, and begin again. (It's quite handy that LisaDraw automatically se-

Figure 9–13



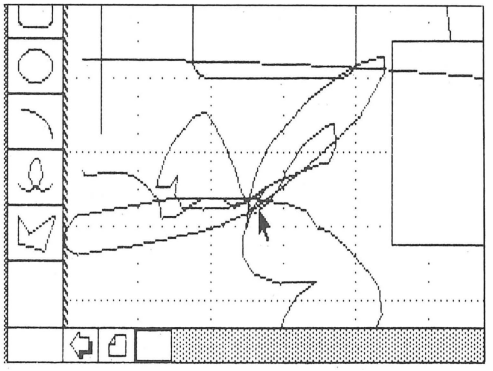
lects what you've just finished drawing, so you can edit it or delete if you decide it isn't what you want.)

Now let's jump down to the box below the circle box on the palette, the one that contains a curved line. It works the same way as the diagonal line—except when you draw it, LisaDraw automatically curves the line (Figure 9–12).

How much a line curves can vary, of course, and that's why you get eight handles to work with instead of the two you get with a straight line. In Figure 9–13, I've grabbed the curve by the middle handle on the right side and stretched it all the way out to the right edge of the window (thus making it much less curved).

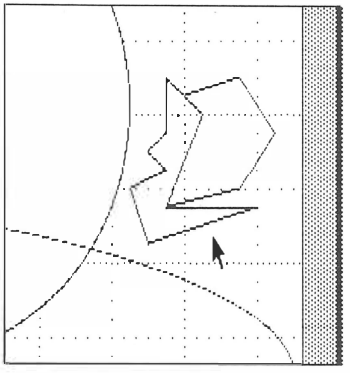
The next box down in the palette contains the **freehand symbol**; it's used to draw lines that are neither straight or regularly curved. You just draw on the screen with the pointer. It takes a pretty steady hand to take advantage of this freehand capability; as you can see from Figure 9–14, I don't have one.

Figure 9–14



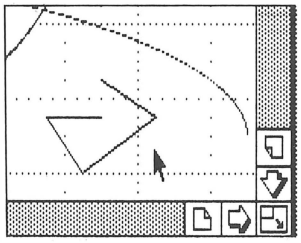
The next box down is used to draw polygons other than rectangles; they can be as complex and/or bizarre as you want them to be (Figure 9–15). The polygon symbol works somewhat differently than the other palette items. You click at each corner and LisaDraw keeps generating lines until you return to the starting point.

Figure 9–15



You can also complete a polygon by **double-clicking** at any point. This allows you to draw open, straight-line shapes much more easily than if you used diagonal lines. A modest example is shown in Figure 9–16.

Figure 9–16



The empty space below the polygon symbol in the palette is . . . empty space, awaiting new and exciting predrawn shapes that will doubtless be included in later versions of LisaDraw.

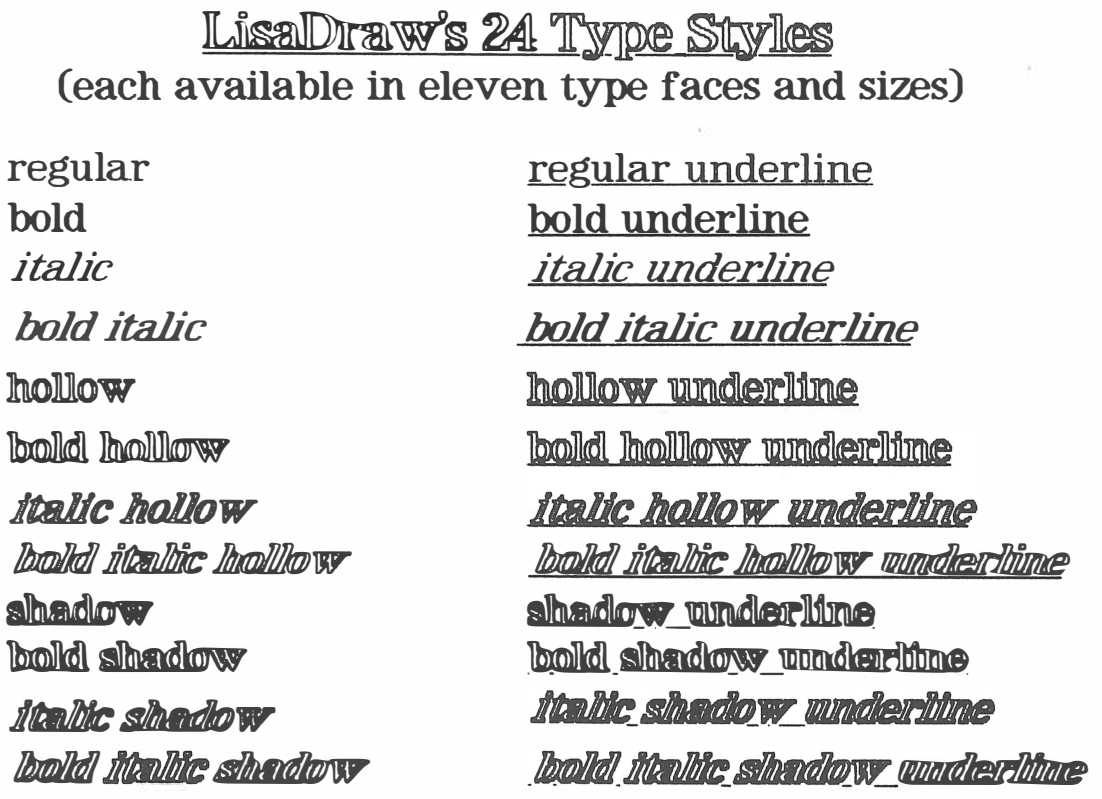
Unlike LisaWrite, which gives you a measly 88 type **fonts** (face, size and style combinations) to choose from, LisaDraw (and LisaGraph) give you *264*! You get the same eleven type faces and sizes, but instead of a mere eight type styles in each face and size, you get 24 (thanks to the addition of the **hollow** and **shadow** type styles). Figure 9–17 displays the possibilities (and Figure 4–15 shows the eleven type faces and sizes you can combine them with).

You may notice that I haven't combined hollow and shadow; that's because shadow is simply an enhancement of hollow. Hollow shadow is just like shadow—there's no difference between them.

The shadow underline styles look much better on the screen than they do on paper. In fact, they look so bad on paper that I'm not sure we should really count them. If they're eliminated, LisaDraw and LisaGraph are only capable of producing a paltry 220 distinct type fonts.

There are two ways to enter text in LisaDraw. If you want it centered within an object, you just select the object and start typing. If you don't, you click in

Figure 9–17



the box marked "Text." This gives you a text pointer, with which you can deposit an insertion point.

The small black up-pointing triangle (or **caret**) between the "e" and "x" in the Text box tells you that what you type will be centered around the insertion point, which is the default. (This doesn't mean it will be centered within an object—that depends on where you put the insertion point.) You can also choose to have the text pour out to the left or right side of the insertion point (if you do, the caret will shift to indicate it).

Whether you use the Text box or the automatic text entry function, you can grab the text you've entered at any later point and reposition it wherever you want.

Figure 9–18

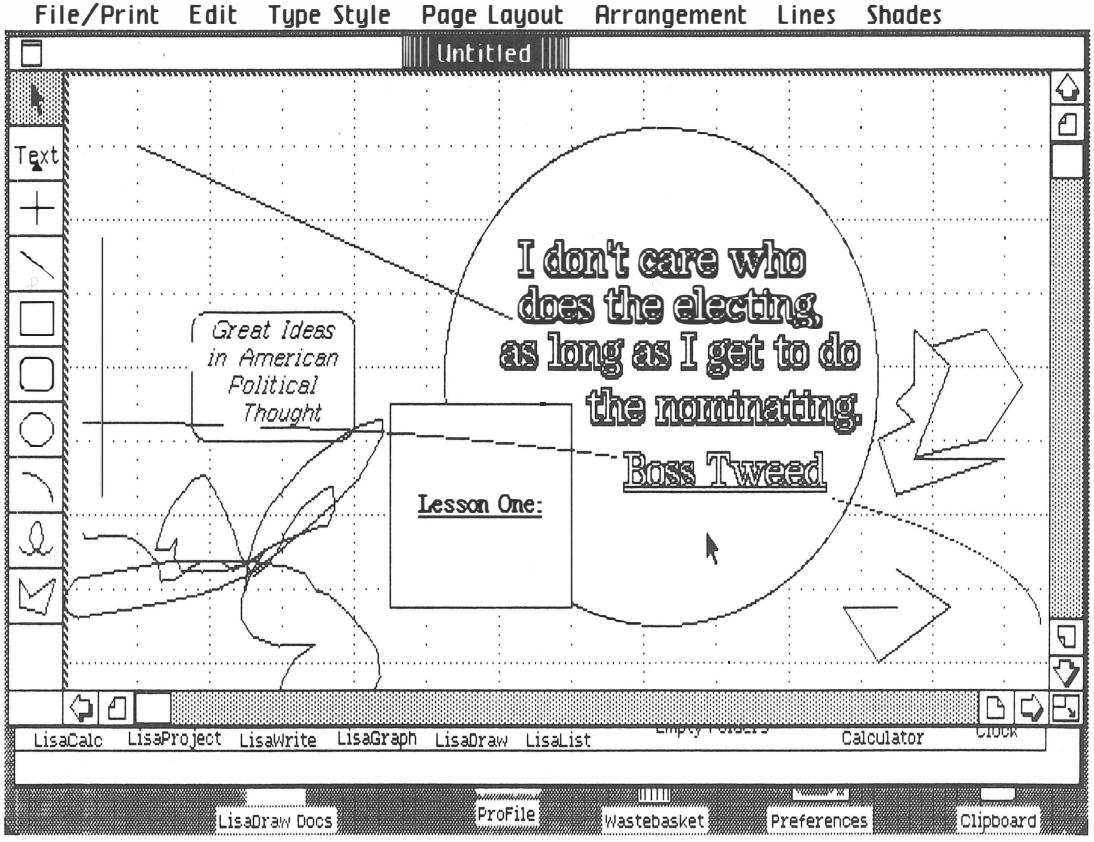
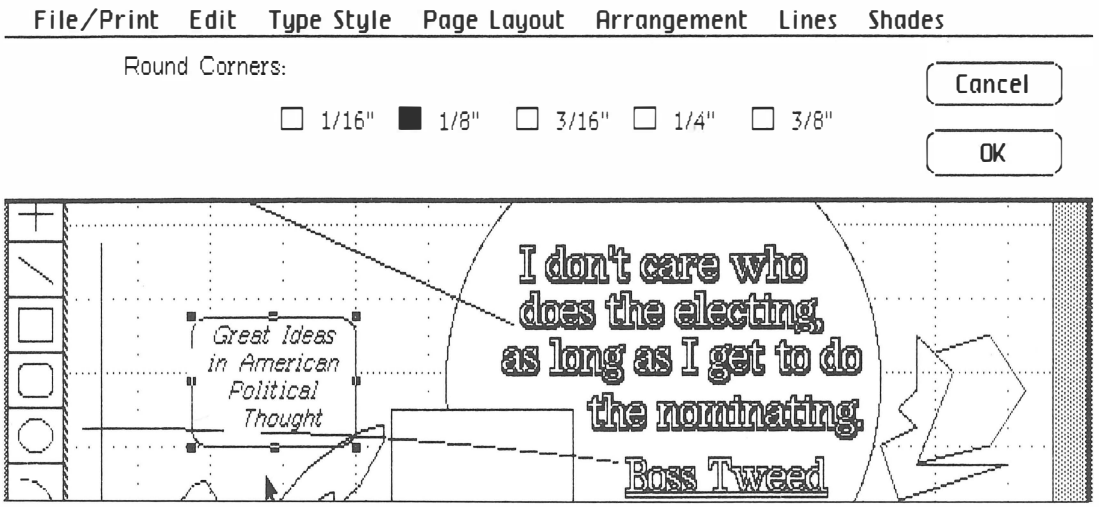

File/Print
Edit
Type Style
Page Layout
Arrangement
Lines
Shades
Untitled
Text
Great Ideas in American Political Thought
I don't care who does the electing, as long as I get to do the nominating.
Boss Tweed
Lesson One:
LisaCalc
LisaProject
LisaWrite
LisaGraph
LisaDraw
LisaList
Calculator
LisaDraw Docs
ProFile
Wastebasket
Preferences
Clipboard

Figure 9–19

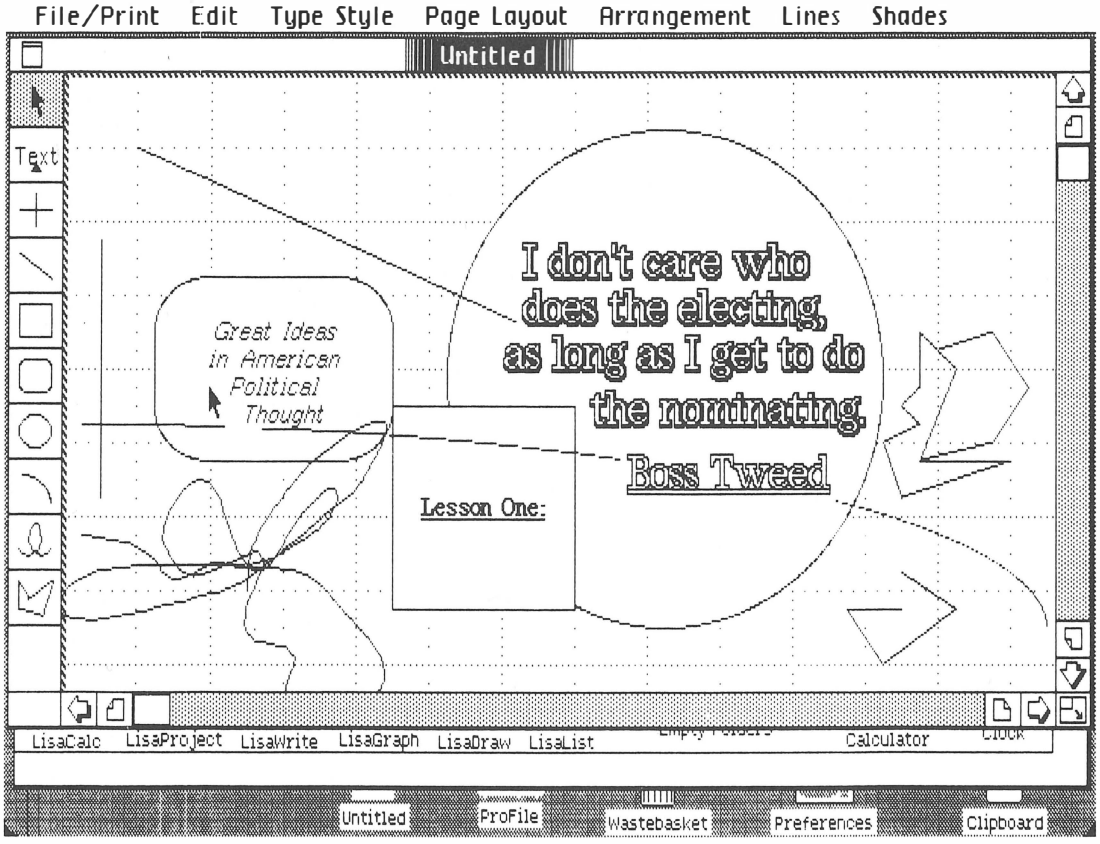


In Figure 9–18, I've added some text to this rapidly devolving drawing of mine, and altered the type fonts for a truly classy look (hey! *chacun à son goût*, buddy). It feels almost strange to use the keyboard again after so long away from it. LisaDraw really is one tool where you hardly need anything but the mouse.

Are you impressed with what this tool can do? Well, you ain't seen *nothing* yet. Covering all of LisaDraw's capabilities would take a whole book, so I'll just mention some of the more interesting ones—like the **Round Corners . . .** item on the Edit menu. This lets you choose *how* rounded you want the corners on a rounded-corner rectangle to be! (You check your preference on the dialog box it produces, shown in Figure 9–19. The default is ⅛-inch; I'll pick ⅜-inch just to see what it looks like.)

Another item on the Edit menu is **Smooth**—it takes the kinks out of a freehand drawing. In Figure 9–20, I've smoothed my freehand drawing—the one in the lower left corner that looks sort of like a buxom anteater with wings—to make it more exquisitely wraith-like. (Figure 9–20 also shows how the ⅜-inch rounded corners look.)

Figure 9–20

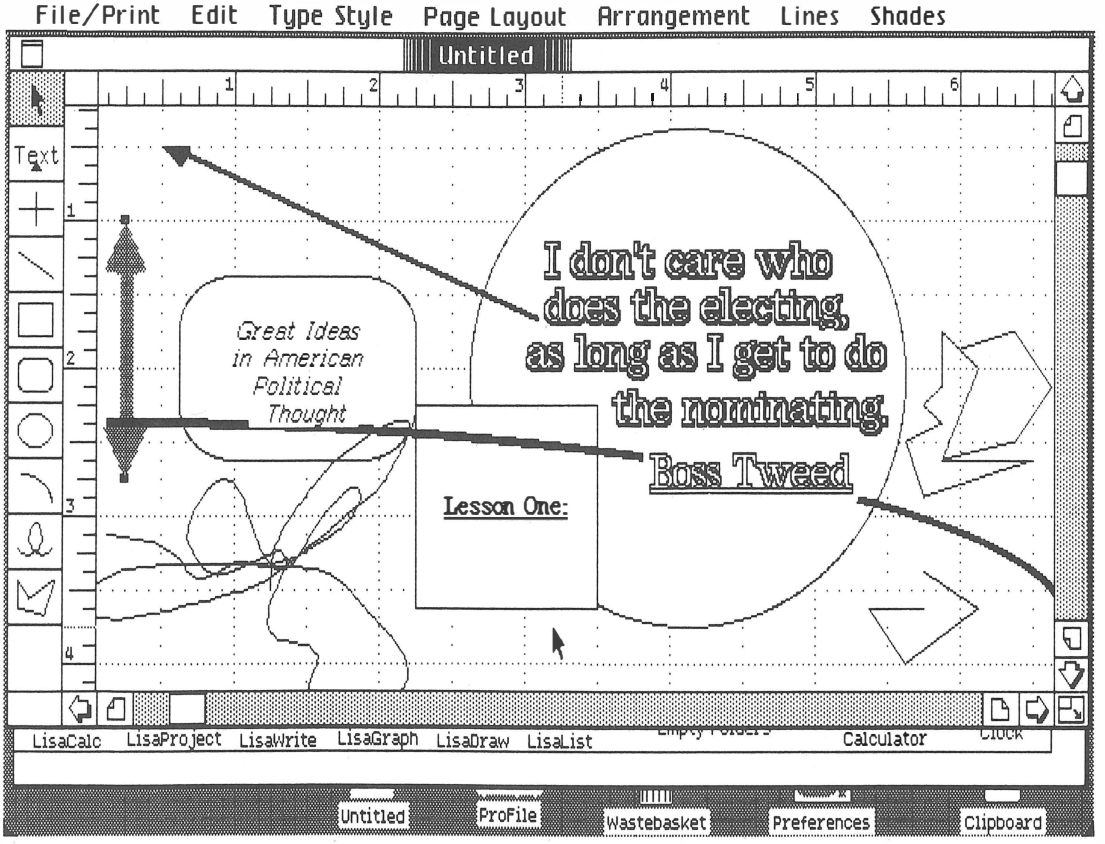


As with LisaWrite, you can have horizontal and vertical rulers displayed on the screen (through the **Page Layout menu**). But, as always, LisaDraw does LisaWrite one better—in this case by letting you customize the rulers so that they measure in picas, say, or cubits, or anything you want. (I've turned the rulers on for you to look at in Figure 9–21.)

The Page Layout menu will also let you:

- turn the grid lines on and off (they don't print out in any case);
- give you the exact dimensions of any object in the window;

Figure 9–21



- show you where the page breaks will fall if your drawing is larger than one page; and
- change the size of the drawing so that it occupies more pages or fewer.

(Like LisaProject, LisaDraw can create drawings up to 32 square feet in size—about 60 pages. The default size is 8 × 10 inches. When you change it, it only affects the printout—the drawing continues to appear on the screen at the same size you created it.)

The **Arrangement menu** lets you do the following things to objects:

- shuffle which ones are on top of which others;

- group them so you can move them around together, change them all at once, copy them in one piece, etc.;
- "lock" them so you can't accidentally move, delete or change them;
- align them by their tops, bottoms, left edges or right edges (this is useful for bulleted lists, or for lining up boxes in a flow chart);
- center them (left to right or top to bottom); and
- align them to the grid lines.

What would you pay for all these amazing features? But wait, there's more! For a limited time only, included absolutely free with each copy of LisaDraw are the fabulous Lines and Shades menus.

The **Lines menu** gives you a choice of:

- four line thicknesses
- in black, grey or white
- with or without arrowheads, at the right end or at both ends.

This makes 36 possibilities in all. The default is the thinnest black line, without arrowheads.

Figure 9–22

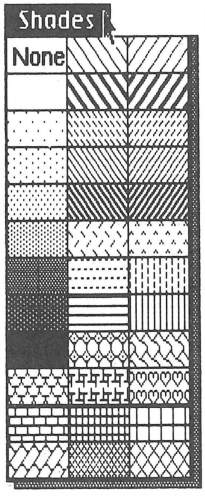
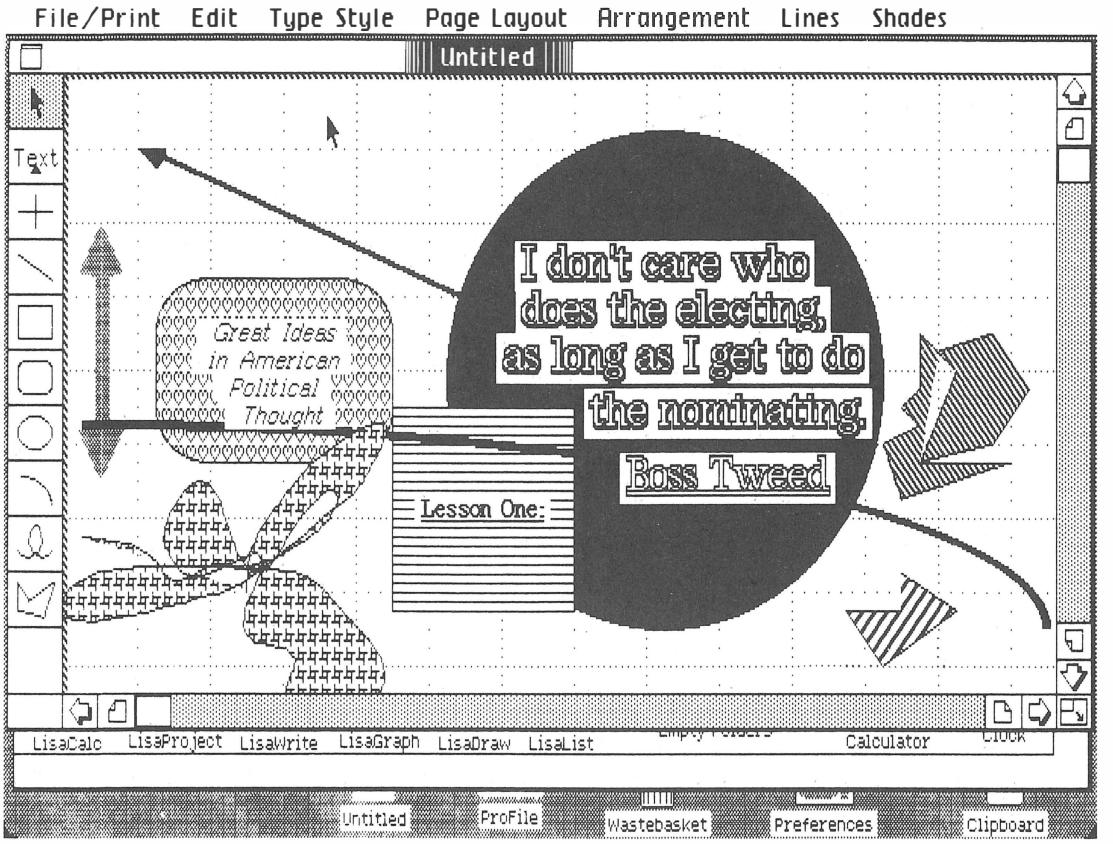


Figure 9–23



In Figure 9–21, I changed the vertical line to the widest thickness (I know that's a clumsy phrase, but try to find synonyms for "thick" in *your* thesaurus), put arrowheads at both ends, and made it grey (white lines won't show up on a white background, of course). I changed the curved line to the next heaviest thickness, and the diagonal line to the third heaviest; I also gave it arrowheads at both ends (you can't see the one on the right because it's buried). The wraith I left alone, on the theory that the less there is of an ugly thing, the better.

Impressive as it is, the Lines menu doesn't hold a candle to the **Shades menu** (Figure 9–22). The number

of choices is the same (36) but the effect of the different patterns is much more dramatic.

To fill in an object, you just select it, then go to the Shades menu and select a shade. As you can see from Figure 9–23, an object doesn't have to be closed to be filled in. The wraith and the lower of the two polygons are both open, but LisaDraw has no trouble putting patterns into them. Also note that text is placed on a white background, so that you don't go crazy trying to read it against a bunch of stripes or checks.

Sometimes you want to make the same change on a number of different objects. There are two ways to have them all selected at the same time. One is to **shift-click** (hold the shift key down as you click on each object). The other is to use the little hand. *Little hand?* What little hand?

If you press down the mouse button when the arrow pointer isn't on an object, hold the button down and move the mouse, the arrow turns into a **little hand**; it draws a box just the way the drawing pointer does when the rectangle box is selected.

This is called the **selection box**, because you put it around the objects you want to select, as I have in Figure 9–24. Unlike a normal rectangle, the selection

Figure 9–24

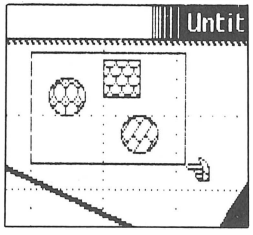
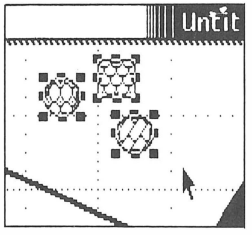
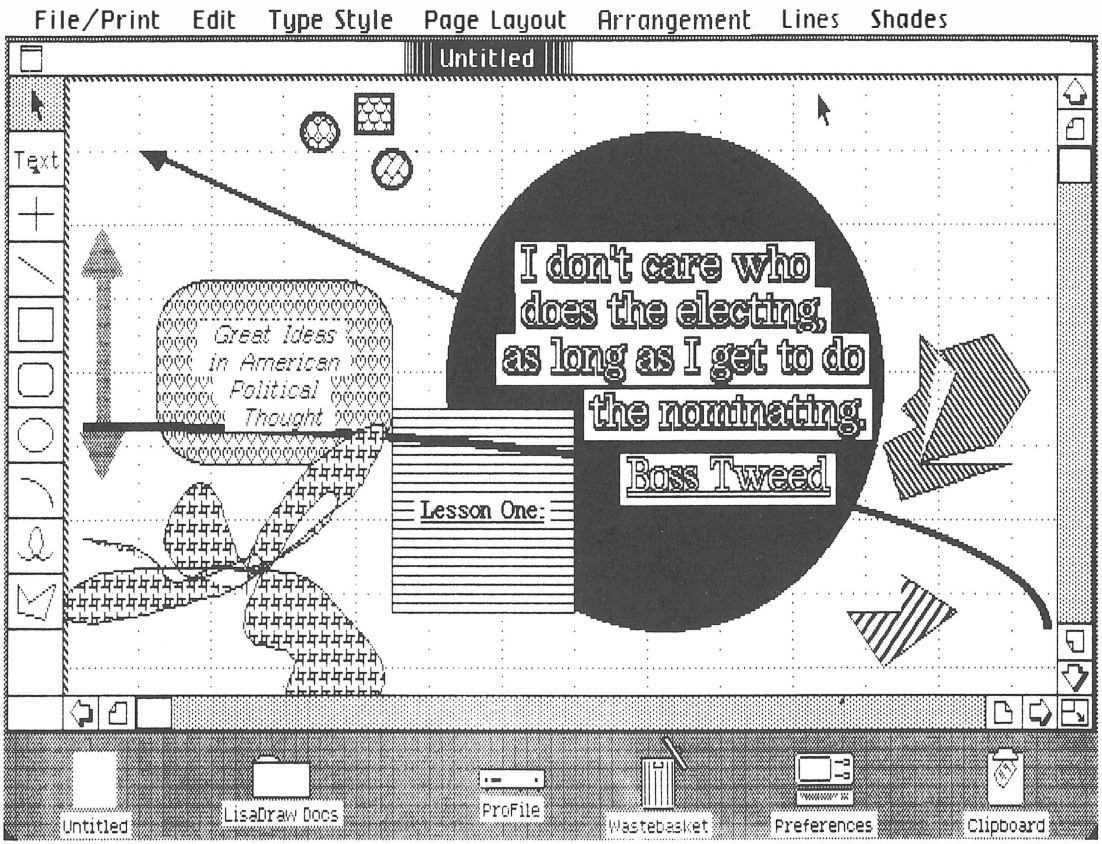


Figure 9–25



box doesn't hang around; once you've got the objects you want surrounded, you release the button and it disappears, leaving handles around each object (Figure 9–25). Then you can do something to all of them at the same time (in Figure 9–26, I put a thicker line around them).

Figure 9–26



Whether it makes more sense to shift-click or use the little hand depends on the number of objects you want to select and where they are in the window. Both methods group objects temporarily; once you've done something to them, they come unglued. If you want to permanently bond a number of objects together (until you specifically tell LisaDraw to separate them), you use the Group Objects item from the Arrangements menu.

Figure 9–26 shows at a glance why I'm a writer and not a visual artist. But hopefully it's served to demonstrate a few of LisaDraw's many capabilities, which talented artists like yourself can put to higher ends.

LisaDraw does lots of other things but you've seen enough to appreciate how useful a tool it is for creating flow charts, floor plans, organizational charts, and just about anything else that's clearer as a picture than as a bunch of words. LisaDraw is also great for customizing LisaGraph and LisaProject charts—changing the shades in the slices of a pie chart, for example, or altering the arrows in a job schedule to indicate different relationships.

For the first year after the Lisa was announced, there were six basic programs—the ones I've just discussed. Then in late 1983, a seventh was announced—LisaTerminal. The next chapter describes it.

10 Communicating with LisaTerminal

When the Lisa was originally introduced, it was clear to everybody that something was missing—the ability to communicate with other computers. About a year later, this gap was filled . . . sort of. The new telecommunications program—LisaTerminal—is fairly primitive and limited in its capabilities (at least in the initial release).

Basically, LisaTerminal allows the Lisa to pretend it's a **terminal** (a keyboard and a screen, rather than a stand-alone computer) so it can connect to another computer. One use for this is to access public data bases like CompuServe, Dow Jones and The Source—either directly, or through telecommunications networks like Telenet or Tymnet (all of which are, of course, actually computers).

LisaTerminal was officially released in late 1983, but it continued to change for months afterwards; the program wasn't really available until early 1984. As a result (and as I expected), Apple was unable to get a copy of it to me before this book went to press (although I was able to locate a draft copy of the manual). So this chapter will tell you how LisaTerminal works in general, but I'm afraid you'll have to do without illustrations of the screen (and details of the functions).

LisaTerminal is capable of simulating three common types of terminals: a DEC VT52 or VT100, or a

TTY (not all the ones you'd hope for, but better than none). To communicate with a distant computer, you have to choose which of these terminals you want the Lisa to mimic, and you also have to adapt to the idiosyncracies (called **protocols**) of the other computer. LisaTerminal uses a standard Lisa approach to doing this:

First you tear off a piece of LisaTerminal Paper and open the window. Then you set up the document thus created to meet the protocols of the distant computer—let's say it's CompuServe. Finally you make a stationery pad out of the document, so the next time you want to communicate with CompuServe, all you have to do is tear off a sheet of customized CompuServe Paper.

You can arrange things one of two ways: so that all your interactions with the remote computer are recorded, or so that the Lisa acts just like a regular terminal, with the information scrolling off the top of the screen and into the ether when you're done reading it. You can also arrange to have the remote computer automatically dialed.

In addition to the File/Print and Edit menus, LisaTerminal has two others. The **Setup menu** accesses the dialog box you use to select "computer compatibility" characteristics (so you can communicate with a particular computer). LisaTerminal offers defaults for all these compatibility characteristics and, if you're lucky, the defaults just might work (in any case, it's worth a try). If not, you use the dialog box to change them.

The Setup menu also lets you select "comfort characteristics" (like whether the interactions get recorded or not), custom functions and tab stops.

You use the **Phone menu** to give the Lisa the number of the computer you want to connect with, and to disconnect from it when you're finished.

In addition to the LisaTerminal software, you need a **modem**—a device that lets computers talk to one another over phone lines. Apple recommends the Hayes Smartmodem; in fact, if you have another brand of modem, you can't use the Phone menu.

Either the 300- or the 1200-baud model will work (**baud** is equivalent to bits per second), but get the 1200-baud model if you can afford it; as I've said elsewhere, "if you can stand to watch text come onto a screen at 300 baud, either you have no central nervous system or you're the Buddha."

You connect the modem to one of the serial ports on the back panel of the console. As with any external device, you have to open Preferences and go to the Device Connections display to tell the Lisa that you're hooking it up (and what kind of modem it is).

Well, that covers the seven basic Lisa tools. But they're only the beginning of what you can do with a Lisa, as the next chapter makes obvious.

11 Doing More with a Lisa

Before I talk about ways you can make a Lisa more powerful, I'll describe the improvements Apple itself made in January, 1984, when it announced the Lisa 2. The major hardware change was the replacement of the two 5¼-inch floppy disk drives with a 3½-inch floppy drive like the one in the Macintosh and optional, built-in hard disk drives that (they say) hold five or ten megabytes.

One advantage of the smaller floppy is that it makes the Lisa compatible with the Mac (which is bound to be a much bigger seller, with much more software written for it). You get a "Mac Mode" icon on the screen that opens into a window where you can run any Mac program.

There are other advantages to the 3½-inch disk—it fits in a shirt pocket and, thanks to its rigid package, it's tough enough not to get damaged there. There's also a metal plate that covers the read/write slot, making it almost impossible to lose data as a result of physical abuse of the disk.

When introduced, the 3½-inch disk only held 400K—as opposed to 860K for a 5¼-inch disk—but 800K versions are coming and will probably be standard by the time you read this.

If you have a Lisa 1, you can upgrade it for free to a Lisa 2/5 (with a built-in 5-meg hard disk drive)

until June 1, 1984. (It costs $600 after that.) Or you can upgrade it to a Lisa 2/10 (with a built-in 10-meg hard disk drive) for $2500. In either case you can get some money by selling your used ProFile, or you can use it for supplemental, backup storage.

There are other hardware differences between the two models: the Lisa 2 has a different front panel, a slightly different mouse and half as much memory. But the most significant difference is in the software—at announcement, the new Lisa software ran twice as fast as the old version, and plans were to have it running four times as fast by April.

There are also hardware enhancements you can make that have nothing to do with the differences between the Lisa 1 and Lisa 2. For example, there'll be an expansion board for the Lisa that allows it to run MS DOS programs written for the IBM PC. An external 5¼-inch floppy disk drive that reads IBM PC disks will also be available. (PC compatibility is becoming a sine qua non for computers nowadays—although the Mac won't have it.)

The new Imagewriter dot-matrix printer comes standard with the Lisa 2, replacing Apple's old dot-matrix printer. Hopefully soon there'll be a plotter that LisaDraw can drive. But you're more likely to want to add software than hardware to your Lisa.

Fortunately, Apple isn't the only company that writes software for the Lisa. UNIX—one of the most popular and flexible operating systems on minicomputers—is available, as are a number of applications programs. There's software for accounting, tax processing and, most significantly, word processing—vitally needed given how clumsy LisaWrite is at entering and editing text.

My favorite of these third-party programs is something called Art Department—a library of more than 300 professionally rendered graphic images you can Paste into LisaDraw. As their flyer puts it, "most Lisa users have neither the time nor the skill [they pause and look meaningfully at me] to produce high-quality

graphics for presentation." If you know what a clip book is, this is sort of an electronic version of one; but unlike clip art, you can customize the images, using LisaDraw to change their shape, size, shading, etc.

Apple has two new pieces of development software that are going to greatly increase the number of programs that run on the Lisa. One is called QuickPort and it allows any program written in Pascal or C to be very quickly transferred to the Lisa. The program runs virtually unchanged, and you can Cut and Paste the results of its computations into any other Lisa document.

The only problem with QuickPort is that it limits what you can do with Lisa's menus and editing functions; in fact, it's sometimes called the "vanilla window" (since it restricts you to standard Lisa functions).

For more flexibility, there's a collection of tools called Toolkit/32 (which were used to build the Lisa Desktop, among other things). It takes much longer to adapt a program to the Lisa when you use Toolkit/32 instead of QuickPort, but you can customize it much more extensively and do flashier things with it.

A lot of companies who want to get their programs up and running on the Lisa are probably going to do an original version with QuickPort and then use the money they get from selling that to finance work on an enhanced, fancier version built with Toolkit/32.

As I said earlier, the Mac will be another source of Lisa programs, since many more programmers are going to be writing for the Mac and since Mac programs will run on the Lisa under Mac Mode.

But there's no reason to limit yourself to programs other people write; you can write your own, with any of the many programming languages available on the Lisa. (Readers who know nothing about programming are excused from the next two paragraphs. If your eyes began to swim when I talked about the "vanilla window," this means *you*.)

Three languages were introduced with the Lisa 1: a BASIC patterned after DEC's BASIC Plus, a COBOL

that meets the ANSI Standard X3.23 and GSA High Level, and a very powerful and complete Pascal that includes—in addition to a compiler and code generator—an editor, linker, assembler, debugger and a number of other utilities (this Pascal is what Apple used to write the basic Lisa tools).

Other companies now offer FORTRAN, C, APL, INTERLISP, an MBASIC compiler, and the language whose name is my favorite, Franz LISP. Modula 2 will also be available. This is a truly machine-independent language and operating environment developed by Niklaus Wirth, the father of Pascal, who got tired of hearing complaints about his first baby and decided to do it *really* right this time (although even with Pascal, he did it righter than anyone else).

Well, that just about wraps things up for this introductory book on the Lisa. You've been a great reader and it's been a real pleasure working with you. Let's do it again sometime.

Index

accent marks, 21
active windows, 33, 62
alphabetical display of documents, 72–75
Altairian police ships, 75
analysis and planning (with LisaCalc), 123–33
annuity (calculated by LisaCalc), 133
APL (programming language), 200
Apple key, 21
Apple key commands, 40
applications programs, 42
Arnold, Matthew, poem by, 115–16
Arrangement menu (LisaDraw), 187–88
arrowheads (LisaDraw), 188–89
arrow keys, 21
arrow pointer, 26
  in LisaDraw, 169
arrows (LisaProject), 163–65
Art Department (program), 198
Auden, W. H., poem by, 49–57
automatic dimming of screen, 8

background printing, 19, 70
backup copies, 43
BASIC (programming language), 199, 200
baud rate (LisaTerminal), 195
binary number system, 16
bit-mapped screen, 18
bits, 16
block (measure of storage space), 17, 43
burning in of hardware, 14
bytes, 16

C (programming language), 199, 200
Calculate Manually, Calculate Now (LisaCalc menu items), 132
Calculate menu (LisaCalc), 132
Calculator (tool), 42–43
Caps Lock key, 21
caret (indicating text placement in LisaDraw), 183
Cases Must Agree, Cases Need Not Agree (LisaWrite menu items), 99
cells
  LisaCalc, 124–26
  LisaGraph, 135–37
centered text (LisaWrite), 108
Change & Find Next, Change This Occurrence, Change To (LisaWrite menu items), 100

character, 16
Chart menu (LisaProject), 165–66
charts (prepared by LisaGraph), 135–51
check pointer, 33
chronological display of documents, 75–77
Circle Missing Values (LisaCalc menu item), 133
circles (LisaDraw), 169–74
Clear key, 21
Clipboard, 26
Clock (tool), 42–43
clock, real-time, 22
closing windows, 37–39
COBOL (programming language), 199–200
Coleridge, Samuel, epigram by, 20
communicating with other computers, 19–21
  using LisaTerminal, 193–95
compound interest (calculated by LisaCalc), 133
CompuServe, 193
console, 5
contrast, on screen, 8
Convenience Settings display (Preferences), 33–35
Copy (Edit menu item), 97
created, when documents were, 73–77
creation of the world, 161–63
cursor, 8
curved lines (LisaDraw), 180
Customize menu
  LisaGraph, 145
  LisaProject, 167–68
Cut (Edit menu item), 96–97

data base management (with LisaList), 117–122
data files, 24, 43
Data Format (LisaList), 119
Data Type of Column (LisaList), 119
DEC VT52 terminal, 193
defaults, 33
Desktop, 24
Desktop Manager, 25
Development System, 23
Device Connections display (Preferences), 35
diagonal lines (LisaDraw), 176–77
dialog boxes, 69
dimming of screen, automatic, 8
disk drives, 5
documents, 43–52
  size of, 73–75
dot-matrix printer, 7, 14, 19, 198
  installation of, 86–87
double-clicking, 41
  when drawing polygons in LisaDraw, 182
"Dover Beach" (poem), 115–16
Dow Jones Information Service, 193
draft mode (for printouts), 19, 70
dragging objects, 47
drawing diagrams and pictures (with LisaDraw), 169–192
drawing pointer
  LisaDraw,169–71
  LisaProject, 153
duplicating, 39–40

ease of service (Lisa hardware), 14–15
ease of use (Lisa hardware), 7–12
editing (LisaWrite), 93–103
Edit menu, 82, 93
eight-bit chips, 15
8088 (chip), 15
8/16-bit chips, 15
electronic spreadsheets, 123
elevators (for scrolling), 52–54

Empty Folders icon, 77–81
Enter key, 21
ergonomics, 7
error messages, 12
expandability, 21–22
eyestrain, lack of, 7–8
"Eye, The" (poem), 106–108

field (LisaList), 121
File/Print menu, 29
fill patterns (in LisaWrite tables), 111
financial functions (calculated by LisaCalc), 133
Find & Change All (LisaWrite menu item), 101
find & replace (LisaWrite), 98–102
Find Next Occurrence (LisaWrite menu item), 99
Find What? (LisaWrite menu item), 98
"finished quality" printouts, 70
5¼-inch minifloppies, 5, 197
flicker, 7–8
floppies (floppy disks), 5, 13
floppy disk drives, 16, 197–98
flush left (text format in LisaWrite), 106
flush right (text format in LisaWrite), 107
folders, 43, 78–81
fonts
  LisaDraw, 182
  LisaWrite, 105
footers (LisaWrite), 112–14
Format for Printer (File/Print menu item), 69
Format menu
  LisaCalc, 131
  LisaGraph, 150
Format ¶ menu (LisaWrite), 106
formatting (LisaWrite), 103–16
formed-character printers, 7
formulas (LisaCalc), 128–30
FORTRAN (programming language), 200
Franz LISP (programming language), 200
freehand symbol (LisaDraw), 181
Function Hints . . . (LisaCalc), 133
function keys, 21

ghost images (on the screen), 8
gloves, magic, 10–11
grabbing objects, 47
Graph menu (LisaGraph), 138–44
grasping objects, 47
grid lines (LisaGraph), 151

handles
  LisaDraw, 172
  LisaProject, 155
hard disk drive, 5, 197–98
hardware (the Lisa's), 5–22
headers (LisaWrite), 112–14
Hide Dialog Box (LisaWrite Search menu item), 99
highlighting, 27, 94
high-resolution mode (for printouts), 18–19, 69
high-resolution screen, 18
hollow cross-hair pointer (LisaList), 117
hollow (LisaDraw type style), 182
horizontal (format for printouts), 70
horizontal lines (LisaDraw), 177–80
hourglass pointer, 46
human engineering, 7

IBM PC, 198
icons, 24–27, 73
idiot-proofing, 12–13
Imagewriter (dot-matrix printer), 7, 19, 198

indents (LisaWrite), 110
initializing a disk, 85–86
insertion point, 48, 94
integration of software, 45
INTERLISP (programming language), 200

Jeffers, Robinson, poem by, 106–108
job tracking (with LisaProject), 153–68
justification (of text in LisaWrite), 106–109
justified text, to both margins (in LisaWrite), 109

K (abbreviation for kilobyte), 16, 43
Kafka, Franz, ix
keyboard, 8–9
kilobytes, 16
King James (and friends), 161

landscape (format for printouts), 70
lines (LisaProject), 163–65
Lines menu (LisaDraw), 188–89
line spacing (LisaWrite), 109–10
Lisa 1, 1, 5–6, 197
  picture of, 6
Lisa 2, 5–7, 198
  Lisa 2/5, 5, 197
  Lisa 2/10, 5, 197, 198
  software on, 1–2, 15, 198
  picture of, 6
LisaCalc, 123–33
LisaDraw, 169–92
LisaGraph, 135–51
LisaGuide, 23–24, 87–91
LisaList, 117–22
LisaProject, 153–68
LisaTerminal, 42, 193–95
LisaWrite, 93–116
  evaluation of for editing, 102–103
  evaluation of for formatting, 103
list management (with LisaList), 117–22
Lisa menu (LisaList), 120
little hand (LisaDraw), 190–91
logarithmic functions (calculated by LisaCalc), 133
logical and, logical or, logical not (LisaCalc), 133

Mac (Apple Macintosh computer), 5–7, 197–199
  Mac Mode (on Lisa 2), 197, 199
margins (LisaWrite), 110
"Master & Bos'n," poem, 49–57
MBASIC (programming language), 200
meg, megabyte, 16
memory, 16, 198
menus, 28–32
  menu bar, 28
  menu items, 29–30
  menu titles, 28
Mice & Menus, Of, 87
milestone circles (LisaProject), 157–58
modems, 194
modified, last time documents were, 73–77
Modula 2 (programming language), 200
Motorola 68000 (chip), 15
mouse, 9–11, 198
  picture of, 6
mouse/icon user interface, 24–25
MS DOS (operating system), 198

New York City Board of Education, ix
noise
  acoustic, 12
  electromagnetic, 14

normal mode (for printouts), 18–20, 69
NPV, net present value (calculated by LisaCalc), 133
numeric keypad, 9

Office System, 23
  installation of, 86
offset connectors, 13
Of Mice & Menus, 87
opening icons, 26
  using double-clicking, 41
  using the File/Print menu, 31
operating system, 25
Option keys, 21
outdents (LisaWrite), 110–11
ovals (LisaDraw), 172–74
Owner's Guide, 23–24, 85–87, 89–90

Page Layout menu
  LisaDraw, 186–87
  LisaGraph, 146–48
  LisaProject, 167
  LisaWrite, 112
Page Ruler, Page Ruler menu (LisaWrite), 112
palette (LisaDraw), 169
parallel interface boards, 21
Pascal (programming language), 199, 200
passive aggression, world-class, ix
Paste (Edit menu item), 96–97
PC compatibility, 198
persistence of vision, 8
Phone menu (LisaTerminal), 194
phosphor, 7–8
pictorial display of documents, 72–73
pixels, 18
planning (with LisaCalc), 123–33
pointer, 8, 26
polygons other than rectangles (LisaDraw), 181–82
portrait (format for printouts), 70
power of the Lisa, 15–21
predicting the future (with LisaCalc), 123–33
Preferences, 26, 33–36
Preview Pages (LisaWrite menu item), 112
Print . . . (File/Print menu item), 70
printers, 7
printing out documents, 69–72
printing the screen, 18
printouts, levels of quality, 18–19
ProFile (hard disk drive), 6, 17–18, 198
  capacity of, 16–18
  MTBF (mean time between failures), 14
  size and weight, 12
  window, 41–42
programs, 24
Protect menu (LisaCalc), 132
protocols (LisaTerminal), 194

QuickPort, 199

RAM disk, 18
Rangoon, Burma, 1
rearranging windows on the Desktop, 57–68
rectangles (LisaDraw)
  with rounded corners, 174, 185–86
  with square corners, 176
reference cards, 9
refresh rate, 7–8
reliability, 14–15
Resource charts (LisaProject), 166
resources section of a task box (LisaProject), 161–163
rewriting the screen, 7–8
Round Corners . . . (LisaDraw menu item), 185–86
Ruler (LisaWrite), 111

safety, 12–13, 83
Save & Continue (menu item), chart, 68
Save & Put Away (menu item), chart, 68
Schedule charts (LisaProject), 165–66
scheduling (with LisaProject), 153–68
screen, the Lisa's, 8, 18
scroll arrows, 55
scroll bars, 52
scrolling, 52–57
search and replace (LisaWrite), 98–102
Search menu (LisaWrite), 98
selecting objects, 26–27, 39
selecting text (LisaWrite), 94–96
selection boxes (LisaDraw), 190–91
self-testing, 13
Set Aside (menu item), 39
  chart, 68
  Set Aside Everything, 67
Setup menu (LisaTerminal), 194
Shades menu (LisaDraw), 189–90
shadow (LisaDraw type style), 182
shadows, 47–48
shielding, 14
shift-clicking (LisaDraw), 190–91
Show as Line (LisaGraph menu item), 145
Show Formulas & Values (LisaCalc menu item), 133
Show Margin/Tab Ruler (LisaWrite menu item), 110
Show New List (LisaList menu item), 120
16/32-bit chips, 15
68000 (chip), 15
size and weight
  of Lisa, 11
  of ProFile, 12
size control box, sizing, 57–58
slack time (LisaProject), 166
Smooth (LisaDraw menu item), 185
software
  the Lisa's basic approach to, 23–84
  the Lisa's basic approach to, evaluated, 83–84
solid flesh, this too too, 101
Source, The, 193
speaker, 22
special characters, 21
split controls (LisaWrite), 102
startup device, 86
Startup display (Preferences), 36
stationery pads, 43
status panel (LisaCalc), 124–26
Sun Also Rises, The, 17
symbols, 21

tall (format for printouts), 70
task boxes (LisaProject), 157–161
Task charts (LisaProject), 166
Tear Off Stationery (menu item), 45, 78
telecommunications, 193–195
Telenet, 193
terminals, 193
text placement (LisaDraw), 183
text pointer, 51, 94–95
3½ microfloppies, 5, 197
title bar, 62
toll-free number (to ask Apple questions), 15
Toolkit/32, 199
tools, 2, 42–43
trigonometric functions (calculated by LisaCalc), 133

TTY (type of terminal), 193–94
Tymnet, 193
type faces (LisaList), 122
Type Style menu
  LisaCalc, 131
  LisaGraph, 150
  LisaWrite, 105–106

undo command, 82
UNIX (operating system), 198
updating the screen, 7–8
user interface, 24–25

vacation days (LisaProject), 166
values
  LisaCalc, 125–26
  LisaGraph, 137
vertical (format for printouts), 70
vertical lines (LisaDraw), 177–80
view buttons, 55–56
View menu, 72–73
VT100 terminal, 193

Wastebasket, 26
"what if?" questions (LisaCalc), 129–30
wide (format for printouts), 70
windows, 31–42
  rearranging windows on the Desktop, 57–68
Wirth, Nicklaus, 200
word processing (with LisaWrite), 93–116
work week (LisaProject), 166

x (horizontal) axis (LisaGraph), 135

y (vertical) axis (LisaGraph), 138

zero insertion force connectors, 22

Other books in the Microcomputer Books Series, available from your local computer store or bookstore. For more information write:

Microcomputer Books and Consumer Software Division
Addison-Wesley Publishing Company, Inc.
Reading, Massachusetts 01867
(617) 944-3700

10242 **Executive VisiCalc for the Apple Computer**
Roger E. Clark

05663 **BASIC Business Subroutines for the Apple II and IIe**
Alan Porter and Martin Rezmer

05092 **Microcomputer Graphics for the Apple Computer**
Roy E. Meyers

06599 **Basic Money: Managing Personal Finances on Your Microcomputer**
Charles Seiter

16482 **Astounding Games for Your Apple Computer**
Hal Renko and Sam Edwards

14775 **Applesoft BASIC Toolbox**
Larry G. Wintermeyer

14652 **Introducing Logo**
Peter Ross

07769 **Discovering Apple Logo**
David D. Thornburg

16453 **The Addison-Wesley Book of Apple Software 1984**
J. Stanton, R. Wells, S. Rochowansky, and M. Mellin

11358 **Database: A Primer**
C. J. Date

01245 **1-2-3 Go!**
Julie Bingham

10924 **Starting with UNIX**
P. J. Brown

08848 **The Business Guide to the UNIX System**
Jean L. Yates and Sandra L. Emerson

10355 **CP/M and the Personal Computer**
Thomas A. Dwyer and Margot Critchfield

05248 **Executive Computing**
John M. Nevison

11208 **The Beginner's Guide to Computers**
Robin Bradbeer, Peter DeBono, and Peter Laurie

06577 **Pascal for BASIC Programmers**
Charles Seiter and Robert Weiss

05247 **The Little Book of BASIC Style**
John M. Nevison

01589 **BASIC and the Personal Computer**
Thomas A. Dwyer and Margot Critchfield

> > $9.95 FPT USA

Introduction to the LISA™

Arthur Naiman

A clear guide to one of the most revolutionary computers of the decade

Apple's Lisa computer has changed the way people work with small computers. Features that the Lisa introduced — using a mouse to point to things on the screen and working with several applications at once in separate windows — have become common. Thanks to the Lisa, that tired cliché "user-friendly" finally means something.

And thanks to Arthur Naiman, here's a lavishly illustrated, clear explanation of the basic hardware and software features that set the Lisa apart from its rivals. Examine each of Lisa's seven applications which, collectively, were awarded *InfoWorld*'s 1983 Product of the Year Award:

LisaWrite, a word-processing program
LisaList, a database manager
LisaCalc, an electronic spreadsheet
LisaGraph, a program for business charts
LisaProject, a job tracking and scheduling program
LisaDraw, a very sophisticated graphics program
LisaTerminal, a telecommunications program

The Lisa runs all the software of Apple's newest sensation, the Macintosh, giving you and every business professional the computer power and flexibility you've always needed but have never been able to get.

If you're thinking of buying a Lisa, INTRODUCTION TO THE LISA provides the information you need to make your decision. If you already own your Lisa, this book will get you started using it more quickly and easily than Apple's own user manual and training program.

Arthur Naiman, one of America's most popular writers of computer books, is known for his clear, entertaining approach to technical subjects. His other books include *Introduction to WordStar, Computer Dictionary for Beginners,* and *Word Processing Buyer's Guide.*

ISBN 0-201-15895-7

ADDISON-WESLEY PUBLISHING COMPANY

Naiman Introduction to the LISA 15895